

Teaching Home Science In Secondary Schools

A Handbook of Suggestions for Teachers

Rajammal P. Devadas



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FOREWORD

THE author, Dr. Rajammal P. Devadas is well-known in the field of Home Science. Her academic training and professional opportunities have brought her into contact with a rich variety of experiences in the field of Home Science. She has been a lecturer in Home Science in the Madras and Delhi Universities and Dean of the Faculty of Home Science in the M. S. University of Baroda. For several years, as Chief Home Economist, Ministry of Food and Agriculture, Government of India, she has been responsible for the programme of training *gramsevikas* in Home Science Extension. She is on the Board of Studies of many universities and has several publications to her credit. She has directed numerous Seminars and Camps, working actively with students and teachers of Home Science. She has also assisted the Ministry of Education in drawing up the syllabus for the Multipurpose Schools. She is thus, eminently qualified to write this book.

In the first two parts of the book, the author has expounded the philosophy of Home Science and its role in education. She has worked out the subject matter of Home Science, taken from the draft syllabus for Multipurpose Schools, prepared by the Ministry of Education, Govt. of India, into integrated units and has analysed each unit in terms of goals, experiences for pupils to attain those goals, and evaluative devices to make sure of the realisation of those goals. The chapter on 'Planning Home Science Activities' will be of great value to teachers, who are often puzzled by the lack of facilities and ideas, to implement the syllabus. I have no doubt that this book fulfils a real need.

The author has discussed the methods of teaching the subject and has also given an exhaustive list of books, equipment and suggestions for organising the Home Science Department which would be useful for the teachers. In fact, teachers other than those teaching Home Science, will also find this volume stimulating and helpful for the author has based her contribution on a thorough understanding of the needs of secondary schools in India and the findings of research on the learning process.

New Delhi
22nd December, 1958.

K. L. SHRIMALI
Union Minister for Education

Preface to the First Edition

HOME SCIENCE has been introduced as a subject in more than 200 multi-purpose and secondary schools in the country. The All India Council for Secondary Education has issued, on behalf of the Ministry of Education, Government of India, the draft syllabuses for Higher Secondary Schools, in which Home Science occupies an important part. Hundreds of teachers, with a deep understanding of the scope of Home Science and ability to teach it, based on the cultural background of our country, are required to implement the syllabus in the subject.

The present publication is intended to aid teachers of Home Science using the draft syllabus, (1) in a better understanding of pupils' needs and interests (2) in helping pupils to form desirable habits, to acquire the needed skills, and to get the broad vision necessary to meet satisfactorily the problems they will confront in daily life, as youths today and adults tomorrow and (3) in planning, organising and teaching the Home Science programme. It is based on the courses prescribed for Home Science in the draft syllabus. The sequences given in that syllabus have been altered slightly to suit the units outlined, and to vitalize the approaches to the units. Some additional items have been included. To help teachers and administrators in their attempts to provide Home Science Education in meaningful, useful and attractive ways to pupils within their economic means, some important aspects of Home Science teaching are also discussed. These include such items as : The Philosophy and Purposes of Home Science Education, Scope of Home Science in Secondary Education ; Successful Teaching of Home Science, and Planning, Organising and Carrying on the Home Science Programme.

The purpose of Home Science Education is to bring about fulfilment in personal, family and community living of pupils. To achieve this end, the pupil, the school and the family need to supplement each other and work together to make it possible for pupils to have many and varied experiences. Therefore, emphasis has been laid throughout on providing experiences which will enable pupils to have a better understanding of factors essential for happiness in life and develop ability for achieving it. Activities such as, guiding small children ; managing personal and family resources ; time and materials ; making the home beautiful, comfortable and safe, and choosing a vocation—all these are aimed towards understanding successful living.

The teacher of Home Science has the responsibility of helping pupils develop not only as individuals, but also as family members. It is, therefore, important that she chooses activities which will help pupils recognize the significant values in happy family living. Happiness is the ultimate goal, and skills, teaching aids,

books and other devices are merely tools facilitating its achievement. Since self-development and self-direction are important learning experiences, the teacher must provide pupils with opportunities for making choices and solving problems.

In Home Science, learning cannot be confined to the classroom. It needs to be supplemented with experiences in the home and community and there should be a close correlation between class instruction and its application in the homes. Co-operation of parents in selecting and planning experiences, solving problems and evaluating accomplishments must be enlisted. Home experiences should become an integral part of teaching. The teacher should also seize every opportunity to integrate Home Science instruction with lessons in other subjects, specially Science, Hygiene, Citizenship, Crafts, Fine Arts and Social Studies.

Implementation and teaching of the Home Science programme is a continuous process. Home practices change with technological and economic developments. Learning experiences vary with cultural background of individuals and situations. Therefore, the Home Science teacher must constantly take into account the factors which influence homes in the locality. She needs to remember that programmes are made for pupils, and that all learning experiences are planned to provide them opportunities to grow in the preparation for home life.

Many studies and experiences during the past few years have contributed to my interest in and contacts with pupils studying Home Science in secondary schools. As part of the requirements for the Master of Arts degree in Home Science Education, of the Ohio State University (U. S. A.) in 1949, a thesis, "Proposals for a Four-Year Teacher Education Programme in Home Economics in India" was submitted after a study of syllabi from several secondary schools in India. I am greatly indebted to Dr. Gladys Branegan Chalkley, former Director, School of Home Economics, Ohio State University, and Dr Dorothy Scott, Director, School of Home Economics, Ohio State University, for their guidance.

In 1954, as Dean of the Faculty of Home Science, Baroda University, I was requested to suggest a syllabus in Home Science for the high schools in Bombay State. Incorporating that syllabus, an article, "Home Science in Secondary Education" was published by Shri T. K. N. Menon, Dean, Faculty of Education, Baroda University, and Editor, *Journal of Education and Psychology*, and sent to all State Departments of Education in the country inviting suggestions. Comments on that syllabus received from several teachers have been helpful in preparing this book.

Outlining the Home Science syllabus for the Institute of Rural Higher Education Ministry of Education, Government of India, and the One-Year Curriculum for the Training of *gramsevikas* in Home Science in the Ministry of Food and Agriculture, Government of India, collaboration with Mrs. B. Tara Bai, Directress, Lady Irwin College, New Delhi in the formulation of the Home Science part of the draft syllabuses for Higher Secondary Schools issued by the All India Council for Secondary Education and participation in the curriculum committees in numerous universities, colleges and State Departments of Education, have helped me immensely in this work.

The experiences derived from the Home Science camps for teachers of Home Science in secondary schools conducted in 1956 and 1957, under the auspices of the Extension Services Department of the Teachers' College of Sri Ramakrishna Mission Vidyalaya, Coimbatore, with the assistance of Dr. Berenice Mallory, Dr. Dorothy Williams, Dr. Lorna Gassett, Miss Mary Rachel Armstrong (TCM professors in Home Economics from the University of Tennessee) and Mrs. Levice B. Allen, TCM Chief Home Economist, have been utilised in this publication. Selected portions from the reports of these two Home Science camps have been included in Part V.

During the last three years, most of the suggestions given in this book have been experimented in the Shri Avinashilingam Home Science Multi-purpose High Schools, Coimbatore. The results of those investigations are the chief sources for the activities listed in this book.

I am grateful to all those who have helped me in this task. My thanks are specially due to: Dr. K. L. Shrimah, Minister for Education, for kindly agreeing to write the foreword; Dr. Punjabrao S. Deshmukh, Minister for Co-operation, Ministry of Food and Agriculture, for kindly permitting me to serve on the various Home Science committees and camps and for his great interest in Home Science Education; Dr M. S. Randhawa, M. Sc., D. Sc., I. C. S., Vice President, Indian Council of Agriculture Research and Additional Secretary, Ministry of Food and Agriculture, Government of India, for having given me permission to undertake the assignment; Dr. R. K. Bhan, Deputy Educational Adviser, Ministry of Education, Government of India and Secretary, All India Council for Secondary Education, for the opportunity to write this book and the encouragement given; Shri S. Natarajan, Joint Secretary, All India Council for Secondary Education, for the assistance and advice extended unstintingly at all times; to Sri Samuel Durairaj, Evaluation Officer of the Council for the proof-reading and indexing; the All India Council for Secondary Education for publishing the book; Dr. Berenice Mallory, TCM Professor of Home Science Education, Lady Irwin College, for her critical reading of the manuscript and the constructive suggestions, Dr. Gopinath Kaul, Headmaster, Municipal Boys' Higher Secondary School, Rouse Avenue, New Delhi, for his assistance in going through the manuscript and suggestions; Shri T. S. Avinashilingam, Director, Shri Ramakrishna Mission Vidyalaya, Coimbatore and Founder, Shri Avinashilingam Home Science High School and College, for his valuable comments on the manuscript and help given in the school, and my girls in the Shri Avinashilingam Home Science High School and College for the many insights they gave me into the needs and interests of adolescent girls in modern India.

New Delhi,
17th November, 1958

Rajammal P Devadas

Preface to the Second Edition (Revised)

DURING the past eight years, since the publication of the first edition of this book, numerous developments have been witnessed in the field of education, particularly in Home Science. The phenomenal expansion of primary, secondary and university education, the increasing enrolment of girls, the emergence of a large number of women in the working force, the birth of the Regional Training Colleges and Agricultural Universities and the significant contribution of the Education Commission giving a new orientation to national education directed towards productivity, are some of the outstanding achievements. All these have necessitated an evaluation and revision of the present systems in order to build the future edifices.

The changes in the patterns of family and community living, arising out of the rapid industrialization and its impact on housing conditions, food habits, child bearing practices, clothing and human values have confirmed the unique role of Home Science Education in personal and national development. Consequently, the University Grants Commission and its constituent Universities, Boards of Secondary Education, Extension and Community Development Services and Social Welfare Departments are increasing the depth, scope and content of Home Science to meet the immediate needs of families. Home Science has now a definite place in the national and state plans for education. It is recognized as a discipline, necessary not only for girls but also for boys. A large number of teacher training institutions have started offering 'Methods of Teaching Home Science' as a special course. In the context of these challenges, the demand to make Home Science sensitive to the sentiments, aspirations and needs of the families is unprecedented. This demand can be met only by preparing the teachers to become aware of the national objectives and needs on the one hand, and the latest developments in the field on the other hand, and acquire the necessary skills for disseminating information. Books exert a decisive influence in bringing about this awakening.

This revision is an attempt to help the Home Science teachers move along the newer streams of knowledge, while facilitating pupil development. The philosophy of Home Science education has been re-stated and its purposes re-defined in the light of the recommendations of the Education Commission. The understandings required of teacher and the methods available to her have been reinforced with the recent findings in psychology, communication media and community participation. Greater emphasis has been laid on the educational functions and implications of evaluation. The 'objectives of Home Science Education', 'Reference Material' and the 'Management and Maintenance of Home Science Department' are new features. The revision has meant almost writing a new book.

I am grateful to

The National Council of Educational Research and Training for commissioning the revision,

Miss Franchone Warfield, USAID Home Science Adviser, University of Udaipur, for her helpful suggestions regarding the framework of the book and for material on the qualities and understandings essential for a teacher;

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Kumari Sneha Behura, Artist, Sri Avinashilingam Home Science College, for the illustrations,

My colleague and sister, Srimathi Kamala Anandam, Professor of Child Development, Sri Avinashilingam Home Science College, for her critical examination of the manuscript and immense assistance in its preparation;

Sri T. S. Avinashilingam, Founder, Sri Avinashilingam Home Science College, for his constant guidance and permission to undertake this assignment;

and to all the young girls in our campus who inspired me in this task

December 15, 1966.

Rajammal P. Devadas

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CHAPTER 1

Philosophy and Purposes of Home Science Education

INDIA is a vast country with an ancient and great civilization. Today, as the largest democracy in the world, it has to meet the challenges of times. Science and technology have made great strides and brought within its reach much material wealth, and the pleasures and leisures which accompany them. But it has been found from the beginning of civilization that, while development of agriculture and industries and the consequent increase of wealth enhanced physical standards of life, lasting happiness depended upon the quality of life and values in the *Home*. Men and women go out, work hard and earn a living for their families. Only in the home they find fulfilment and satisfaction, through the inculcation of faith and development of values and transmission of culture. The turmoils, hardships, troubles and tensions of labour of the outside world are forgotten, when members of the family get together in the happy and spiritual atmosphere of the home.

The philosophy of such "home and family" determines, the philosophy of Home Science education. It is the philosophy which has helped man to evolve and maintain the institution 'Home'; taught him the virtues of affection, courage, sympathy and nobility; developed in him sublime love—love for his family, love for his community, love for his country and love for the entire humanity. It is the philosophy which has brought into existence the best in human thought and work and made 'Home' the most influential of all social institutions and organisations in shaping the destiny of man.

The "Home", in Indian philosophy, is identified with the women of the house. The expression 'Home' actually signifies the women—the wife and the mother. Womanhood in India has always been placed in an exalted position, in fact, deified. The divine aspect of God, known as SHAKTI, is thought to be

the energy behind God Shiva and the sustaining power of His Shivalood. The ancient scriptures and the world's great philosophers have pointed out the important role of women in influencing human personality. They have expounded with surprising unanimity, the qualities essential for a wife and a mother.

Tirukkural, one of the greatest ethical codes written in Tamil about 2,000 years back, which has inspired and given strength to millions of men and women throughout the ages, points out the role of women as :

“If the mistress of the house possesses the qualities of a true life-partner, there is nothing that will be wanted in that house..... If the woman of the house does not have these qualities, possession of everything else will not be of much avail.....

She is a true life companion, who is equal to the tasks of the householder's and who adjusts herself to the husband's resources.....

It is essential for happiness in family life, that culturally and economically, the wife should fall in line with the family of her adoption.. ...

Of all her qualities, her purity, chastity and unstinted devotion to her husband, are of the greatest value.....

Such purity is not attained by physical restrictions placed upon her, but by her own conscience, sense of purity and devotion.. ...

There is no greater blessing or strength in life than such a wife. Such a man will walk erect and with strength.”

Vatsyayana, the great teacher, wrote of the manner of living of a virtuous woman :

“A virtuous woman that hath affection to her husband shall, in all things, act according to his wishes as if he were divine. She shall keep the house well cleaned and arrange flowers of every kind in the different chambers and surround the house with a garden and make the floor smooth and polished Above all, she shall venerate the shrine of the household Deities. To the parents of her husband she shall behave as is meet and proper, speaking to them softly in few words, being always quiet and respectful without self-will or contradiction. She shall always consider in the kitchen what her husband likes and dislikes and shall seek to please him..... If her husband does wrong she shall not unduly reproach him, but show him a slight displeasure and rebuke him in words of fondness and affection ”

Manu, the ancient law-giver, said

“That country, in which women are respected and educated will indeed prosper”.....

“The mistress of the household should always be of good cheer, be

skilful in the discharge of house-hold duties, should keep the utensils and ornaments clean and should practise economy in spending."

"Good wives inspire all virtuous (or righteous) actions."

The sacred KORAN indicates :

"The honest women are obedient, careful in the absence of their husbands ; for that God preserveth them, by committing them to the care and protection of the men".

Swami Vivekanand said :

"But know for certain that absolutely nothing can be done to improve the state of things, unless there is spread of education first among the women and the masses

"Religion, arts, science, house-keeping, cooking, sewing, hygiene, the simple essential points in these subjects ought to be taught to our women

".....History and the Puranas, housekeeping and the arts, the duties of home life and the principles that make for the development of an ideal character, have to be taught with the help of modern science.....

"...And the female students must be trained up in ethical and spiritual life.....

".....It is only in the homes of educated and pious mothers, that great men are born....."

Mahatma Gandhi declared :

"I believe in the proper education of women. The future of India is with women. Who can make a more effective appeal to the heart than women ?....."

"Woman is the incarnation of AHIMSA. AHIMSA means infinite love, which again means infinite capacity for suffering. Who, but woman, the mother of man, shows this capacity in the largest measure ? Let her transfer that love to the whole humanity, and she will occupy her proud position by the side of man as his mother, maker and silent leader".

The Holy Bible describes a good woman thus :

"Who can find a virtuous woman ? For her price is far above rubies...

"The heart of her husband doth safely trust in her, so that he shall have not need of spoil, she will do him good all the days of her life.....

"She worketh willingly with her hands.....

"She giveth meat to her husband.....

"Her candle goeth not by night.....

"She stretcheth out her hand to the needy.....

"She is not afraid of the snow ; for, all her households are clothed with scarlet (kept warm).

"Strength and honour are her clothing . . .

"She openeth her mouth with wisdom ; and in her tongue is the law of kindness "

The patterns of home living vary from people to people, country to country, and age to age. Nevertheless, there is an astounding unity in the functions of the home in all the countries throughout history. For instance, the Indian home is different from the English home, and that of the primitive man from the modern one. Even in the same country, life in the home varies from community to community. The Punjabi home is not similar to the Gujarati home and the Kashmiri home is different from a Bengali home. However, the home is still the dominant social unit in all the regions of India. As human thought and experience evolved and technological developments advanced, the concept of home has changed, but the continuing power of the home has persisted in the Indian culture.

The home-maker today, lives in a complex and fast changing society with many needs and many challenges. The joint family system is dying out and servants are becoming few. More women are coming for careers outside the home, being bombarded by ever so many forces from the educational, social, economic and political environment. Consequently, new levels of living and moral concepts have been developed

The modern home is an interdependent rather than independent agency. The home and community share many responsibilities, which were formerly assumed by the home alone. Homes and communities are so dependent upon each other, that any one who is interested in making a good home gets necessarily involved in making the community better, safer and effective co-operation of the home-maker with others in the community. Human relationship is, therefore, assuming a different role today in contrast to the past. The home-maker can no longer confine her activities within the four walls of a house.

Women, as home-makers and citizens, are the repositories of the nation's culture. By maintaining and guarding the integrity of the home and family life, in the midst of the rapid changes which are taking place in modern society, they ensure the continuing stability of the rich heritage of our culture and spirituality. The future of the nation, therefore, depends on the type of education given to women. If their education means awakening of the civic responsibilities and preparation for the social, economic and scientific phases of home life, then certainly it will help to draw out the potentialities of men and women for nation building and make them a strong force. Home Science education is an effort in that direction. It gives men

and women and their families the techniques and abilities essential for group living, independence to think through a problem, get proper information and work out solutions for it ; and initiative to take decisions which are vital to the welfare of the family.

Home Science is the application of many sciences and arts towards achieving healthy and happy homes. It includes knowledge of basic sciences and humanities as well as applied sciences, such as nutrition, food, clothing, child care, home nursing, home management and human relationships. Purity in personal life, devotion to the husband and the family and simplicity which have been the glorious attributes of Indian womanhood, are the bed-rock on which the art of Home Science is built. Abundant life is its goal.

More specifically, the philosophy of Home Science aims at the utilisation of modern science to improve home-living , study of humanities to improve family life , sound scholarship for intellectual thinking ; research to increase information on facts of life ; use of all resources to make home and family life effective parts of the social fabric ; emphasis on the control of material things to realise the higher spiritual blessings and harnessing natural and social forces usefully towards releasing time and energy to make life more divine, beautiful, gracious and worthwhile.

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CHAPTER 2

The Objectives of Secondary Education

SWAMI VIVEKANAND said, "Education is the manifestation of the perfection already in man." Such a manifestation is the outcome of the full development of the individual in all aspects—physical, intellectual, aesthetic, emotional and spiritual. True education inspires in the learners appreciation for their cultural heritage and scientific thinking. It elevates them from the material world to a higher realm of spiritual values. It gives them a philosophy, which will help to utilize the knowledge of physical, natural, biological and social sciences in the development of character.

Education is the process by which an individual grows, develops and becomes increasingly capable of adjusting to a dynamic society. It provides experiences which enable a person to form desirable habits and values, broaden his mental vision, enrich human relationships, and acquire skills to meet and solve the problems encountered in daily life. Mastery of material environment through science and technology in itself cannot bring happiness. One may have physical strength, but not capacity ; knowledge but not judgement ; and material power, but not spiritual fulfilment. Capacity, judgement and fulfilment are the desired ends and science is the means to achieve them. The special feature of any science education is, therefore, inculcation of dedication to truth. Education must help in the acquisition of all those moral qualities, which will result in discipline and devotion to man and God. The mark of a truly educated person is that he is cultured and fearless and has a scientific outlook on life with endless quest for truth.

Each stage of education is important in the development of wholesome personality, physical and mental health, and social and spiritual values. The secondary

stage is particularly favourable for inspiring the adolescents towards understanding and adopting the attitudes and skills essential for harmonious personal, home and community living. Because, at this stage selfhood emerges more prominently in relation to the people around the pupils, and they begin to think of their future homes.

Thinkers and leaders in education in different countries have accordingly defined the goals of Secondary Education in the context of the values, aspirations and living conditions of their people. The Commission appointed by the President of the United States for the Reorganisation of Secondary Education (1918)¹ defined the main objectives of education as follows :

1. Health
2. Command of fundamental processes
3. Worthy home membership
4. Vocation
5. Citizenship
6. Worthy use of leisure and
7. Ethical character.

These have since become the seven cardinal principles of education.

The Secondary Education Commission² appointed by the Government of India in 1952 enumerated the goals of secondary education as follows —

A. Developing democratic citizenship, which means the development of :

Capacity for clear thinking and receptivity to new ideas ;

Scientific attitude of mind to think objectively and arrive at conclusions based on tested data ;

Clarity in speech and writing to cultivate discipline, co-operation, social awareness and tolerance ;

Faith in the dignity and worth of every single individual as a human being ;

Sincere appreciation of the social and cultural achievements of our country and readiness to recognize its weaknesses ; and

Determination to serve the country to the best of one's ability harmonizing and subordinating individual interests to broader national goals.

B. Increasing the productive or technical and vocational efficiency, which means :

Development of appreciation for the dignity of all work and

1 Commission on the Reorganisation of Secondary Education, *Cardinal Principles of Secondary Education* U S Office of Education, Bull 1918 No 35, Washington

2 Report of the Secondary Education Commission, 1952-1953, pp. 22-29.

Acquisition of technical skill and efficiency.

C. Developing the personality, which means :

Release of the sources of creative energy in the pupils in order that they may be able to appreciate their cultural heritage ; and in later years contribute to the development of this heritage ;

Cultivation of rich interests which they can pursue during their leisure ; and

Development of sensitive and quickened minds to respond to the stimuli in the world of Art and Nature.

D. Developing leadership, means :

Appreciation for productive work and the vital relationship between the curriculum and life ;

Development in knowledge, skill and the mental habits required for independent work at the university level ; and

Educating the pupils to assume leadership in the social, political, industrial or cultural fields.

The National Committee on Women's Education³ appointed by the Government of India with Smt. Durgabai Deshmukh as the first Chairman, to propose a comprehensive policy and special programme for expanding women's education, recommended the objectives of a good curriculum as creating right attitudes in life—individual and social

imparting of useful knowledge,

giving of practical training for life,

developing good personal habits, and

inculcating a sense of social awareness and a spirit of service to society.

The Committee on Differentiation of Curricula for Boys and Girls⁴ appointed by the National Council of Women's Education under the Chairmanship of Smt. Hansa Mehta has stressed .

"In the traditional society of the past, motherhood and home-making have been regarded as the sole functions of women and the social and economic responsibilities of life have been mainly placed upon men. In the progressive society of tomorrow, however, *life should be a joint venture for men and*

3. Report of the National Committee on Women's Education, Ministry of Education, Govt of India, 1959, p. 84.
4. Report of the Committee on Differentiation of curricula for Boys and Girls appointed by the National Council for Women's Education

women. Men should share the responsibility of parenthood and home-making with women ; and women, in their turn, should share the social and economic responsibilities of men.

We do realise that child-rearing and home-making will have prior claims on women. We, however, feel that owing to the development of science and technology, both these functions will occupy less and less of their time. It would now be possible for women to take up a career of their own and it will be a great social tragedy not to allow them to do so. We, therefore, recommend that the education of women should be so planned as to enable them to follow a career of their choice without, in any way neglecting their responsibilities for child-rearing and home.

The Education Commission (1964-66)⁵ which recently submitted its report to the Government of India has urged that the aims of education at all levels should be directed towards national development and national goals.

“Education should be developed so as to increase productivity, achieve social and national integration, accelerate the process of modernization and cultivate social, moral and spiritual values”.

For this purpose, the Education Commission has recommended the reorganisation of the programme for secondary education as follows

“The existing one-year higher secondary course will soon have to be reorganised to cover a two-year period. We give below a list of subject areas which, we think, should form part of the curriculum. But this list is only suggestive. The whole question of the higher secondary curriculum will have to be carefully examined and the details worked out by an expert body consisting of representatives of universities, state boards of school education, and state departments of education.

1. Any two languages, including any modern Indian language, modern foreign language and any classical language.
2. Any three subjects from the following .
 - (a) An additional language
 - (b) History
 - (c) Geography
 - (d) Economics
 - (e) Logic
 - (f) Psychology
 - (g) Sociology
 - (h) Art
 - (i) Physics
 - (j) Chemistry

- (k) Mathematics
- (l) Biology
- (m) Geology
- (n) Home Science

3. Work experience and Social service
4. Physical Education
5. Art and Craft and
6. Education in moral and spiritual values."

The implementation of this reorganised programme of secondary education is bound to integrate the different facts of pupil's life—home, school and community, theory and practice, learning and living; understandings and applications; and physical, mental, emotional and spiritual development. Such integration is the very essence of Home Science which is education for home living.

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Scope of Home Science in Secondary Education

AS PART of the school programme, Home Science Education prepares youth for the greatest of all vocations—Home-Making. In addition, it orients young girls and boys towards preparation for several professions—teaching, nursing, dietetics, research, welfare, management, art application and extension work.

The goal of Home Science education in high schools is to help pupils lead a satisfying personal, family and community life. In the Home Science classes, pupils are provided guidance and opportunities to grow in social graces, managerial abilities and competence in home-making skills. Planned units and sequences in the various phases of Home Science help pupils to assume the management of a home and family and/or the responsibility of wage-earners in activities related to the home. The pupils are thus helped to obtain knowledge, skills, understandings, guidance in personal and family relations and appreciation for cultural and spiritual values, all of which enable them to live joyfully and effectively in their “would-be” homes after marriage.

The major phases of Home Science are (1) Foods, nutrition and cookery, (2) Housing and Home management ; (3) Textiles, clothing and laundry ; (4) Health, first aid and home nursing ; (5) Child Development and Mother Craft, and (6) Human relationships (Figure 1).

1. Foods, Nutrition and Cookery

The main purpose in teaching pupils Foods and Nutrition is to help them recognise that nutrition is important for healthy living and that health is essential to success and happiness. Through carefully selected experiences and practical activities pupils are guided to select, prepare and combine foods in nourishing meals.

SCOPE OF HOME SCIENCE IN SECONDARY SCHOOL

THE GOAL OF HOME SCIENCE EDUCATION IS TO HELP EACH INDIVIDUAL TO LIVE MORE USEFUL AND SATISFYING PERSONAL, FAMILY AND COMMUNITY LIFE

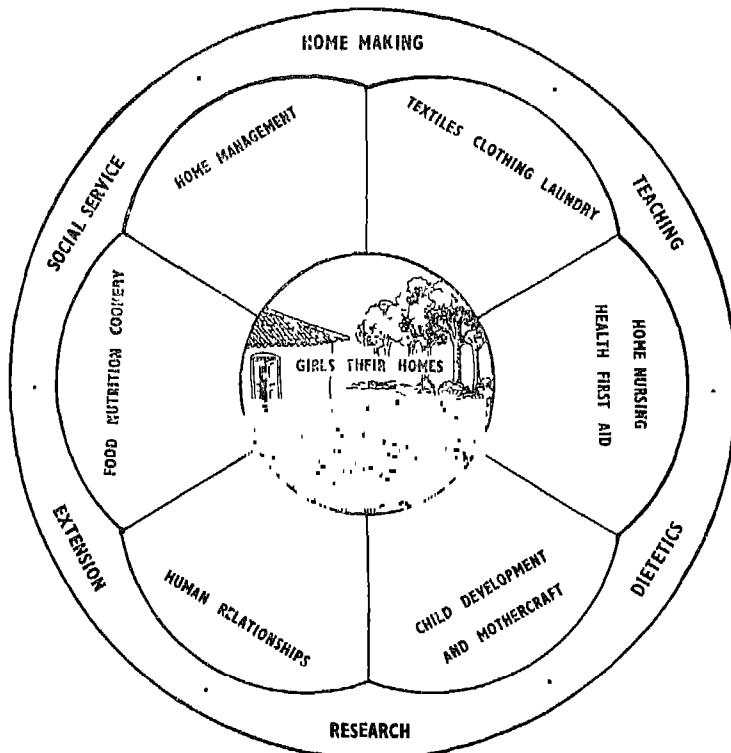


Fig. 1

They are taught items such as the daily food needs of family members ; the cost involved in fulfilling them through the available foods in the locality , purchasing foods , planning and preparing meals, with colourful combinations of food , serving meals attractively ; storing and preserving food , entertaining friends ; hospitality through food , feeding children, the old and sick persons ; and arrangement of the different types of equipment and *chullahs* in the kitchen. These activities arouse pupils' interest in procuring better diets for themselves and their families. Cookery classes are popular in high schools because, through them, pupils become aware of

the relationships between food, health and personal appearance. They have opportunities to express creatively their talents and appreciate the aesthetic and psychological factors in relation to food

2. Housing and Home Management

The major objective in teaching management is to develop in pupils an appreciation for the role of management in the economical use of time, energy, money and other material resources, as well as the human resources to derive maximum satisfaction and joy in home life. Pupils study the space, time, effort and finances available for meeting the demands of family life.

Good management is getting *what one wants, with what one has*. It is concerned with all aspects of family life such as managing time, spending money wisely, planning activities to save energy and labour, catering to the needs of every member of the family, cleaning, clothing and decorating. Young boys and girls get practical experience in learning to care for the house, select and use utensils, choose furnishings, arrange furniture, decorate the home, maintain accounts, budget time and money and save for the future. Economical work habits, balanced distribution of work among members of the family, use of labour-saving devices and modern equipment, care of family possessions, adjusting to income and making wise choices are stressed.

3 Textiles, Clothing and Laundry

The aim of teaching this area is to help pupils recognize the aesthetic, hygienic and economic values of clothing as an asset to personality. The clothing needs of the family, the money to be spent in meeting those needs, knowledge of fabrics from the stand-point of cost, durability, nature of textile fibres and sewing equipment are taught. Experiences such as making garments, methods of washing clothes and caring for clothing (alteration, repair and storage) are included to give an understanding to pupils about textiles and clothing.

4. Health, First Aid and Home Nursing

The purpose of teaching health is to help pupils develop the appreciation that maintenance of good health is the key to success and happiness, and it is the sacred duty of every educated person. In Home Science classes, boys and girls have opportunities and experiences, to practise the principles of mental and physical hygiene and improve their health habits. They study how diseases spread and how a sanitary environment prevents diseases. They are educated in the care of the sick in the home, including feeding. Knowledge regarding prevention of illness, safeguards to health, hygiene, physiology, community health, home sanitation, personal grooming, and first aid measures is necessary for every member of the family.

5. Child Development and Mother Craft

This area develops an eagerness in pupils to care for and love children. Pupils learn to do things with and for children. They plan activities and experiences

for them. They learn to select and tell stories in the nursery or pre-schools. They make toys for their younger brothers or sisters. Information on feeding, clothing, and entertaining children are included in this section. Through these experiences and observations on children, the inherent interest of adolescent pupils in children receives fulfilment, and they begin to understand the stages in child's growth and development.

6. Human Relationships

The area of human relationships is important because it deals with getting along with people. Good relationship between the members of the family, classmates and friends is essential for satisfactory growth and happiness. Through active participation in family celebrations, festivals and other important occasions, good human relationships are fostered. Individual and group recreation, leisure-time activities, civic and social responsibilities are included in this area. Democratic procedures adopted in Home Science classes result in respect for human personality and appreciation for the worth of each individual.

All these phases of Home Science are closely inter-related to each other and with the pupils' homes and families. For example, providing adequate nutrition for the child is not just a problem of food, but also involves money management, human relationships, health, child psychology, aesthetics and ethics. In the same way, all family problems involve several areas of Home Science.

The entire Home Science programme is based on spiritual and moral values. An abiding respect for moral standards, individual and collective, is developed. The place of religion in the home, ethical standards, sportsmanship, understanding oneself and others, developing loyalties and tolerance, importance of devotion, honesty, trustworthiness, dependability and integrity, as essential for successful home and family living are emphasised.

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CHAPTER 4

Relationship between Home Science and Other Subjects in Secondary School Curriculum

GENERAL EDUCATION aims at the all-round development of individuals to enable them take their place in society as effective members (1961). In the development of their abilities, emphasis is placed on personal development for living in a social group. The functional philosophy of education calls for "Preparation for living through living". Home Science helps to fulfil these purposes in a unique way. It helps pupils to develop a point of view that challenges them to explore how to live together happily in their families, other social groups and communities. Because of this quality, the experiences provided in the Home Science classes draw applications from the other subjects taught through the school curriculum. Being a combination of sciences and arts, Home Science helps pupils to learn all the other subjects in the school curriculum with ease.

Home science can enrich the many-sided activities in the school and contribute towards efficiency in its organisation and administration. The hall marks of a good organisation are .

1. adequate facilities in terms of building, equipment, curriculum, methods and teachers;
2. clearly defined aims and objectives ;

3. understanding of the suitable methods by which the goals can be attained;
4. an awareness of the obstacles which must be overcome to achieve the end, and
5. the details in specific routines to save time and thought in order to avoid waste, anxiety and annoyance.

These characteristics of good organisation are abundantly present in Home Science because of its science and art based on human centredness and practical approach to daily life. Home Science facilitates the tasks of all those who are involved in the educational endeavour—the school headmaster, staff, pupils and parents by helping them to work as members of one family with vitality and harmony, like a smooth sailing ship, according to a planned programme.

A home is made up of different types of individuals. The mother organises them, assigning duties at particular timings. They are assisted to find their places in the family and function in a disciplined way, to derive maximum satisfaction out of their efforts. Similarly in the school, state and nation, Home Science education can make a worthy contribution towards their functioning as wholesome entities, organised under proper leadership with distinct goals and plans. The Home Science syllabus gives pupils adequate scope to carry to completion the work allotted to them. It prepares them to be good planners, efficient executors and responsible leaders. They are urged to come forward willingly to shoulder many responsibilities in the school. How the various subject matter areas of Home Science can contribute to the school organisation is shown in the following statements.

Contribution of Home Science to the School Programme

Areas of Home Science	Contributions to school activities
<i>Nutrition</i>	<ol style="list-style-type: none"> 1. Maintaining heights and weights of pupils 2. Helping in the arrangement of kitchen and store room 3. Helping in cleaning and storing perishable and non-perishable foods in the hostels. 4. Planning menus 5. Participation in the school garden activities. 6. Assisting in serving meals during parties. 7. Supervision of the storage and use of drinking water and maintaining its cleanliness.
<i>Household Management</i>	<ol style="list-style-type: none"> 1. Helping in maintaining the class and hostel rooms clean and orderly. 2. Caring for school furniture and library books 3. Maintaining punctuality in the school 4. Helping in planning the class excursions and leisure-time activities.

Textiles and Clothing

5. Assisting in putting up exhibitions
6. Helping in keeping accounts
1. Assisting in the selection, purchase and storage of linen for the school
2. Advising peer groups in the selection of their clothing
3. Understanding the importance of school uniforms
4. Helping in clothing construction
5. Helping in taking body measurements of pupils to draft patterns
6. Helping in organizing the exhibitions on clothing.
7. Organizing the sales of clothes for benefit purposes.

First Aid, Health, Sanitation and Home Nursing

- 1 Influencing pupils towards establishing sound health habits
- 2 Helping in school health activities such as cleaning drive
- 3 Maintaining cleanliness in the classrooms and laboratories
- 4 Becoming members of the Red Cross
- 5 Being ready to render first aid in the school
6. Avoiding spitting anywhere and throwing waste everywhere
- 7 Educating the public during festivals and functions by keeping and using waste paper baskets

Child Development and Mother Crafts

1. Helping in organizing games for the smaller children in the school.
- 2 Preparing suitable stories for young children.
- 3 Helping in organizing exhibitions for young children
- 4 Preparing play things, toys and dolls for children's sales.
- 5 Appreciating the role of family planning.
- 6 Assisting in care for young children during Parent-Teacher Association meeting and other occasions where mothers bring their young children

Human Relationships

- 1 Choosing friends wisely and maintaining them
- 2 Being good citizens ; maintaining the rules of the school.
- 3 Helping in organizing festivals in schools
4. Rendering voluntary service during intra-mural activities and inter-school contests
- 5 Joining Bharat Guides.
- 6 Conducting prayer during school assemblies — helping in flag hoisting.
7. Entertaining guests and other groups.

The Home Science pupils can utilize the experiences mentioned above for carrying out their responsibilities and thereby learn Home Science effectively. They can accept the responsibility for the maintenance of discipline in the school,

particularly during assemblies. They can help to build up high traditions in the school and be examples for the maximum — "Only those who know to obey can command". By serving on committees to plan the budget for the special fees based on the income and expenditure pattern, for the library, laboratory, medical inspection, arts and crafts, Home Science, and for the meetings and celebrations of the literary associations, they can further the understanding of Home Science. Conducting games, respecting the rules of games and sports, supervision of the cleanliness of the school and its surroundings, since they know "Health is wealth", taking the responsibility for the maintenance of sick room, regular use of school uniform for impressing the other pupils about "unity in diversity", provision of a happy and clean atmosphere during lunch time and bringing about the fulfilment of the proverb, "A place for everything and everything in its place", are some of the other activities that Home Science pupils can carry out with ease and grace. Home Science can then prove to be a realistic and practical education, since learning by doing leaves a permanent impression in the minds of pupils.

Home Science pupils who have been taught the various aspects of Home Science with their applications to the day-to-day activities in the school, will be assets to the school and society. Pre-planning, adjusting to the environment, proper use of the available materials and resources, importance of realizing human relationships, sensitivity to cleanliness and learning by doing are the marks of good citizens. Home Science facilitates greatly the transfer of these values, knowledge and skills to the pupils.

The curriculum is the framework of instruction. It carries the plans and specifications for providing instructions to the pupils (Morrison 1940)⁶. Hall and Paolucci (1961)³ consider that all school programmes, regardless of their fields, whether science, mathematics, literature or Home Science are built on a common foundation based on research and knowledge, relative to the needs of society, human growth and development, concepts about how pupils learn and the subject matter content. In a good school, as McNerney (1953)⁴ exhorts, the sum of all the learning experiences in the curriculum is so organized that pupils and teachers are helped to understand the contemporaneous relationships that exist between them. For example, the pupil does not feel that he or she is learning mathematics just to know the subject and to pass the examination, but because fundamentals of mathematics would be useful in the calculations required in the study of physics, chemistry, family budget and account-keeping.

Framing a curriculum is not a shuffling of courses with addition or elimination of subject matter or rearrangement of topics. An adequate curriculum is one in which all the aspects in the experience of the learner are considered and an orderly programme is provided to assist the teacher in bringing the varied elements into suitable relationships (Caswell and Campbell 1935)¹. For example, the topic 'study of human body and its functions' included in the subject matter of physiology, is correlated with the topics "the body's need for different nutrients,

the food stuffs which furnish them, their digestion and metabolism", which are studied under the subject matter of Home Science. When the science teacher explains the process of digestion, she would give examples for the facts found in the related topics in Home Science. Similarly the Home Science teacher would take the topic, only after the lessons on digestion in physiology have been dealt by the science teacher and make a cross reference. Topics such as cleanliness in the house and house decoration should be linked up with health education, citizenship training and moral instruction. In language classes also, the teachers can emphasize the proverbs and practices which have a bearing on Home Science. In the extra-curricular activities, such as gardening, 'developing a kitchen garden' could be for 'growing food for self-sufficiency'.

In physical education, the teacher can explain what kind of exercise is beneficial to the proper functioning of the organs. Teaching arts and crafts can be related to Home Science education in that the craft work can be used for home decoration or for use by the family members as suitable accessories. Another example is a lesson on meal preparation. This would involve calculation of the cost, that is, knowledge of arithmetic. Such correlated experiences facilitates learning as pointed out by Spafford (1935)⁷ and Russell and Gwynne (1946,⁸). They give pupils confidence and sensitiveness to express themselves more positively and attractively.

Thus Home Science finds correlation almost in all the other subject matter areas of the school curriculum and activities, as discussed below:

Mathematics

Since Home Science deals with the management of the home, knowledge of mathematics is essential. Wherever quantitative calculations and analysis are required, mathematics and Home Science help each other mutually as shown in the following examples :

Topics in Home Science

Balanced Diet

Correlation with Mathematics

Ratio and proportion

Measurements.

Combination of foodstuffs in proper proportion

Budgeting for food

Calculation of cost — calculation of the nutritive value.

Home Management

Calculations in daily purchase. Income and expenditure — The four rules of Mathematics

Savings

Knowledge of various methods of savings like fixed and recurring deposits

Knowledge of simple and compound interest. Accuracy in keeping up accounts.

<i>Building a house</i>	Making the plan to scale. Drawing a miniature plan of a house using "representative fractions".
<i>Artistic decoration</i>	Use of many geometrical figures, like triangles, circles and hexagons for flooring Proportion in <i>kolams</i> .
<i>Health</i>	Maintaining the health charts.
<i>Attending on sick persons</i>	Temperature chart. Statistical graphs to show conditions of the patient
<i>Drafting and tailoring</i>	Taking measurements accurately. Thoroughness in multiplication tables, especially fractional calculations.
<i>Infant care</i>	Recording height and weights of infants Maintaining time schedule for feedings. Mixing feedings according to proportion Stitching baby's clothings according to calculations Observing the child's developments according to norms

General Science

Home Science is a unique combination of sciences. It deals with nutrition, physiology, microbiology, textiles and clothing, child development and home management. General science deals with physics, chemistry, botany and zoology. Study of general science, therefore, finds many correlations with Home Science as shown below.

Topics in Home Science

Nutrition

Energy needed for the body

Study of carbohydrates, proteins, fats, minerals, vitamins and water

Textiles and clothing

Correlation with General Science

Concept of the unit—'Calorie' in Physics and Nutrition

The energy—calorie requirements for different individuals

Weights of food stuffs

Weighing human beings (physics).

Calculation of how much to eat

How much to cook, and estimation of waste.
Tests for starches and proteins.

Chemistry of textiles

Chemicals used to identify different kinds of fibres.

Study of the chemicals like dilute hydrogen peroxide and silver nitrate used in textiles and drugs.

Health and Hygiene

Chemical and physical methods of removal of different kinds of stains.

Soap making Action of detergents. Hardness in water—softening of water.

Disinfectants such as chlorine and potassium permanganate.

Water purification.

Housing and ventilation.

Prevention of cholera, malaria, typhoid through disinfectants.

Use of detergents—chemicals in keeping the house and its surroundings clean.

Increasing family income

Paper-making.

Spending leisure time profitably.

Methods of cooking

Cooking utensils—study of different metals—conduction of metals with which household utensils are made—brass, aluminium, stainless steel, etc

Reactions of food on metallic utensils

Different types of cookers.

Use of pressure cooker.

Household illumination

Study of light and electricity.

Different kinds of lamps and fuses.

Use of microscope to examine slides in various topics in Home Science

Time and energy.

Electrical appliances.

Labour saving device

Principles of heat as applied to fuels, ovens, irons, heaters.

Bleaching materials

Use of chlorine or sulphur dioxide.

Vegetable garden

Botany — different varieties of plants — their cultivation and uses.

Fertilizers—Use of superphosphates and nitrates

Study of the nutrient content of the plant production.

Vitamin C

Germinating grains

Vitamin A deficiency

Principles of light.

*Night blindness**Digestion of food*

Zoology and human physiology.

The digestive system, circulatory system, nervous system, skeletal system, excretory system, respiratory system, endocrine glands, reproductive system.

The general science reinforces the study of Home Science. General science cannot be separated from Home Science.

The other school subjects also offer unlimited opportunities for correlated teaching as shown below .

Language and Mother Tongue

Teaching proverbs pertaining to family living and spiritual and moral values in the home.

Writing poems and plays on any area of Home Science

Role-playing, dramatization in any area of Home Science

Reading papers and journals to understand current problems in standards of living such as banking and marketing.

Composing nursery rhymes, group songs and *kumkum* with Home Science topics and themes.

Participation in debates and elocution competitions with themes on living problems.

Arranging exhibitions.

Contributing to school magazine.

Reading selections from literature pertaining to study of home life in ancient times—what the poets, play writer and prose writers of the past have said about food, clothes, hospitality, motherhood, child care, religion, rituals, family relations, balancing budget, household management, savings and investment, home nursing, hygiene, health and community and social welfare.

Worship and spiritual values and celebrations of festivals in literature

*Social Studies — History,
Geography, Civics,
Citizenship Training*

History of civilization—what we learn about life in the past (Harappa-Mohenjodaro).

The history of temples and worship.

History of clothing over the ages.

How different people used different types of clothing according to seasons and temperature.

Sources of raw materials for clothing—clothing suitable for different climatic conditions.

History of housing—how were houses built in ancient days to let air, wind, sunshine and sunlight into the houses.

Selection of site and study of soil for housing—Sources of raw materials for housing—Home decoration over the ages—Floor decoration—

	<i>Kolam</i> decoration with leaves—Flower arrangement—Decorating the house according to climate.
	Food production in ancient India.
	Human relationships.
	Home-maker's contribution to happy family life
	Living harmoniously in communities.
	Community sanitation and hygiene—personal hygiene—cleanliness of surroundings.
	Citizenship—understanding the rights and duties of citizenship.
	Civic consciousness, home-maker's responsibility towards public utilities
	Proper use of the public utilities and school property
	Study of Five Year Plans, practice of Panchashila at home
	Influence of other cultures and customs on our country and how they influence our pupils.
	History of cooking—how man started boiling and developed sophisticated cooking methods from primitive tools. Social etiquette—hospitality in the different areas. Observations of festivals. The place of women in society.
	Chastity in home life.
<i>Fine arts, drawing, painting, music, crafts</i>	Colour combinations in dressing, housing, and decoration.
	History of sculpture, painting, drawing as leisure-time activities in ancient civilization.
	Proper use of leisure time ; Handicrafts.
	Value of hobbies.
<i>Physical education and hygiene</i>	Practice of health habits, personal hygiene, hygiene of clothing.
	Understanding how food builds up tissues, nourishes blood.
	Importance of physical education in childhood.
	Diet, exercise, play, health and happiness
	Learning team spirit.
	Proper clothing for athletes
<i>Moral Instruction</i>	Religion in daily life.
	Moral values in the home,

Thus the different activities provided in the high school offer unlimited scope for their correlation with Home Science education. The important point to be observed is that the teachers of the different subject matter areas meet and work out together the type of activities to be correlated, so that they can apply meaningfully the knowledge of other subjects and activities to what they teach. In their explanations, all the teachers should cite examples from day-to-day experiences so

that the pupils can understand easily the purpose of their knowing such facts. In such an effort, the teachers are bound to find definite correlations between their subjects and home science, since the latter is education for daily living. (Devadas)².

The Home Science teacher has a vital part to play in creating the atmosphere for correlation among the administrators, colleagues, home makers and leaders. Her resourcefulness, up to date information and insight into the problems of the day-to-day world will give a realistic and sound background for her colleagues to achieve a correlated approach in preparing their pupils for leadership.

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CHAPTER 5

The Home Science Teacher

TEACHING is both a science and an art. It is a science in the sense that careful planning of objectives, methods, contents, experiences and evaluation are required of the teacher. It is an art, because the teacher needs the fine qualities such as sensitivity to the needs, interests and progress of pupils, sympathetic personal relationship and skills in working with children and adults. The teacher should be a large personality, a great soul, characterized by simplicity, sincerity, love, faith in eternal values and deeply concerned about human relationships.

The success of any Home Science programme depends upon the teacher. She has the responsibility for recognizing the needs of pupils and encouraging their co-operative participation, by introducing new ideas, adapting old customs, inspiring action and fostering desirable practices.

Never before in the history of education has the teacher of Home Science been called to play such an important role as at the present time. In a world of sweeping social and technological changes which affect profoundly human affairs and personal relationships, becoming a successful teacher is a unique challenge! Home Science today, includes all aspects of family living. Its scope and functions have been greatly widened embracing all the members of the family on the assumption that they find satisfaction in living, to the extent that they are able to deal adequately with the needs and circumstances of their times. Home Science can be effective only as it alleviates the problems brought about by changing situations.

Living in a Changing World

It is sometimes difficult to realize how fast the world is moving or in what direction it is heading. As changes occur, new problems arise, new situations emerge

and old patterns of action may no longer be the most desirable. All these changes have considerable impact on our culture and give rise to corresponding changes in the family pattern.

Advances in science and technology are directly related to the changes which influence the patterns of family life. The joint family is rapidly disintegrating due to the expansion of industry and facilities for transportation. The ever growing trends in higher education opened the doors to women in many professions. Consequent on the eradication of diseases and improvement of the health status of people, the span of life has been increased considerably. Through industrial growth there is more and better household equipment in the market.

The economic changes appear to be the greatest factor in altering the traditional ways of life. Caste is understandably the first to be affected. However, in urban societies, it has hardly any influence except perhaps in the choice of a partner for marriage within the same caste group. In the midst of these changes, the family unit continues to be very stable, with its values for the most part remaining unaffected. Against this background of social and technological changes, the successful teacher of Home Science will have to recognize and understand their implications for family living.

Competencies Associated with Success in Teaching

This raises the question "What makes a successful teacher?" The answer to this question may vary in different localities and situations. It will depend upon the goals of education, and the needs and values of the community. There is agreement, however, that a teacher should know (1) what to teach (2) why to teach and (3) how to teach; achieve harmony between the goals of education and the needs of pupils. To do this, she needs certain competencies. These competencies, supplementing and reinforcing one another, are briefly described in relation to the conditions faced by the teacher of Home Science today.

Acquiring Breadth and Depth of Knowledge

To teach Home Science effectively, the teacher needs to have knowledge in all the subject areas associated with an adequate homemaking programme. This includes child care and guidance; food for the family; clothing and textiles, health and home care of the sick, housing, household furnishings and equipment and personal, family and community relationships. Permeating these areas are management, safety and human relationships. A teacher further needs to have a broad education in several of other fields of knowledge such as the natural and physical sciences and humanities to augment the Home Science programme.

Developing and Utilizing a Philosophy of Life and Education

Every teacher needs to have a sound philosophy of life and education as basis for thought and action. She needs to know herself, what she stands for, what she wants and is willing to work for, and how she can adapt herself to the world around

her. A philosophy of education is generally related to one's philosophy of life. It may emerge from experiences which give rise to certain beliefs about education, or it may evolve from a conscious attempt to organize one's beliefs into a pattern which can serve as a guide for constructive action.

Understanding Adolescents

The kind of adjustment a pupil makes to a situation is influenced by the state of her development at that time. These are fundamental in teaching Home Science at the secondary school level. The term "Adolescence" generally means "growing to maturity". In addition to understanding the social background and the patterns of home and community life she must know the nature of adolescent development and the characteristics of adolescents.

Pupils in the secondary school are in the adolescent stage which is an important period in the development of an individual. It covers approximately the years between the ages of 12 and 21. During these years, boys and girls normally make marked progress in their development from dependence to independence, from irresponsibility to responsibility, from interest in their own sex to sociability, and from uncoordinated purposes towards an integrated personality. Therefore, information regarding their development is indispensable to the teacher to guide them in the selection of goals and experiences.

Every society expects of its members certain patterns of behaviour at different stages of development. These expectations, often referred to as developmental tasks, differ from one culture to another, but may not change substantially within the same culture at a given time. Efforts to accomplish these tasks give rise to various individual problems, differing in degree and intensity. However, successful achievement brings personal happiness and social approval, whereas failure leads to unhappiness and social disapproval.

The major developmental tasks which the Indian society expects adolescents to accomplish by the time they reach maturity are as follows :

1. Understanding and accepting the physical change which accompany "growing up".
2. Establishing emotional stability.
3. Finding a place among age-mates.
4. Learning one's sex role.
5. Gaining relative independence from parents.
6. Making satisfying educational and vocational choices.
7. Establishing a moral code.
8. Developing a philosophy of life.

The successful teacher attempts to help her students accomplish the developmental tasks expected of them through the different areas of the Home Science programme. She does so by acquiring a comprehensive knowledge of these tasks.

Adolescent maladjustment and emotional conflicts are caused by external forces, in addition to physiological and sociological causes. Therefore teachers should seek to discover the needs, interests and problems of young people as bases for planning the curriculum.

Table I gives the characteristics of adolescents during three age levels of development *i.e.*, early adolescence (11-13 years); middle adolescence (13-15 years), and later adolescence (15-17 years).

Wide differences exist between the sexes and between the chronological age-groups of the same sex. Also within an individual, there are different levels of physical, emotional, social and intellectual growth as illustrated in Figure 2.

CONSIDER EACH CHILD AS AN INDIVIDUAL

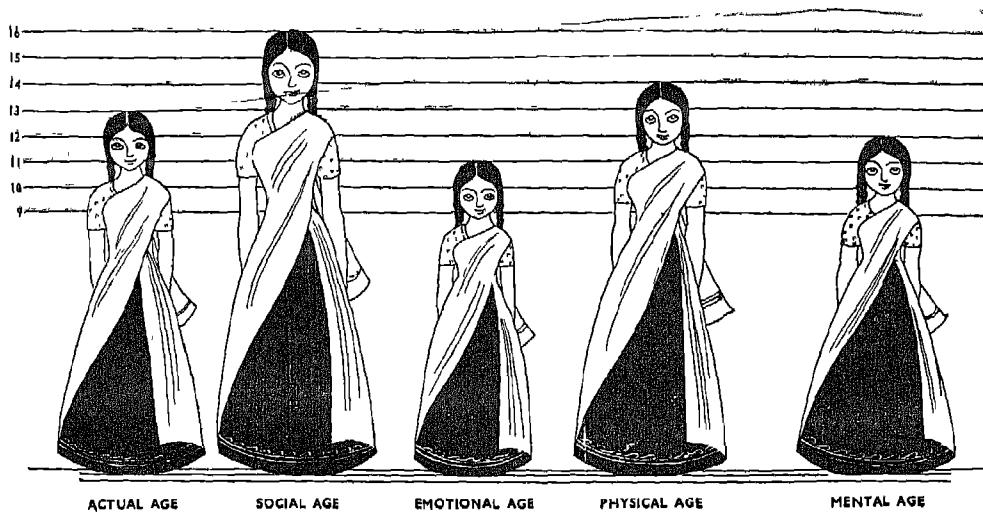


Fig. 2

Patterns of growth are not as simple as the classifications in chart I. The characteristics of adolescents given in chart I are those which seem most significant for the Home Science programme. The Home Science teacher, through her understanding of these characteristics, should find many ways in which she can help pupils in their development. For example, at the early adolescent level, children lack motor co-ordination and steadiness. Therefore, they may have difficulty in operating a sewing machine for straight stitching. Hand-sewing at this level may be poor and slow. Thus, when sewing is taught during this age, enjoyment, and interest rather than skill, should be the main outcome.

Initiating and Maintaining Good Interpersonal Relationships

Every school is a small society of its own within which personal relationships play an important part in determining not only the success of a teacher but also her happiness. Since the teaching of Home Science involves contacts with many people, the importance of establishing satisfactory relations with the community needs to be recognized by every teacher. Initiating and maintaining good interpersonal relationships is vital. Much of her professional success depends upon the goodwill of the community. To be able to understand and get along with people and to make allowance for individual differences are some of the fundamental skills which a teacher needs to develop. These skills are essential in her everyday living, whether it be on the job or in after school hours.

The teacher's relationships with students are affected by her own personality characteristics. A teacher who is reserved and stands aloof will establish different types of relationship from one who is friendly and humorous. A teacher with many fear complexes will be different from the one who feels basically secure. Sometimes the habits which a person has already established may not make her suitable for teaching children.

Lack of social skills or teaching skills may affect management of the class and precipitate discipline problems. The teacher should constantly analyse her techniques of classroom management, inviting suggestions from other teachers and the pupils.

The teachers' deficiencies in social skills may be :

1. use of sarcasm
2. failure to answer questions
3. insensitivity to special problems of pupils
4. being inconsistent
5. impoliteness
6. making personal references about students or their homes
7. being unfair
8. being partial
9. making remarks about the community and
10. talking about pupils in public places.

Teaching Effectively

This is probably the most important of all the competencies associated with the successful teacher. It is very closely related to and even dependent on all the other competencies.

Since effective teaching deals with each pupil, his needs, interests and abilities it requires knowledge of the environment in which the pupil lives, the developmental problems he faces and his mental ability. It also calls for an understanding to the

learning process, essential for creating an environment where learning can take place and for making instruction so stimulating that every pupil will want to learn.

Stimulating pupils to think critically, independently and creatively is also considered an essential factor in effective teaching. At the same time it is important for the pupils to be able to clarify their ideas, to develop ability to express themselves and to understand the ideas of others.

Teaching is meaningful when appropriate methods of teaching are used. Continuous search for knowledge about these methods and constant practice in using them skilfully, will pave the way for success in teaching.

Last but not least, is the need for constant evaluation. Only by appraising what is being done, how it is being done and what has been accomplished, and what still needs to be done can the teacher know to what extent she is achieving the objectives of Home Science.

Accepting a Professional Role

An important competency associated with a successful teacher is that of accepting the role of a professional person in the field of teaching. This role is well defined in what is known as a professional code of ethics. In general, the codes define the teacher's responsibilities in terms of her relationships. One important aspect is that of working co-operatively with professional associates, while another is active participation in professional organizations.

Maintaining Optimum Physical and Mental Health

Teaching is a strenuous occupation. Therefore, it is essential for the teacher to maintain good physical and mental health. Every Home Science teacher knows and gives instruction in the simple rules for good health, such as appropriate exercise, sufficient rest and relaxation and a balanced diet. She probably realizes importance of cultivating a sense of humour acquiring friends and developing leisure time interests. But these are not always easy for a teacher to achieve unless she makes a special effort. However, keeping physically and mentally fit should be high on her list of competencies if she expects to be a successful teacher.

An impartial, imaginative, vigorous personality with reverence for truth and capacity to be cheerful makes a good teacher. More than good looks, the personal attractiveness of a teacher lies in physical and mental vigour, enthusiasm, energy, vitality and alertness. A good teacher is sociable, appreciative, sympathetic and pleasant. She smiles and comments favourably when working with children. She possesses a good speaking voice, keen sense of humour, self-control and earnestness.

A good teacher is a good leader. A leader is one who influences the attitudes and actions of pupils. A leader who releases the creative talents of a group should have respect for other people. She must be sensitive to the moods of the group with whom she works. She must be able to express her ideas clearly and easily. She must

be mature. Her energy must be used for purposeful activities. Intelligence and integrity are important in leadership. Some one has aptly said that a successful teacher is one who :

Likes to teach and also to learn to listen as well as to speak. Enjoys her subject so that the learner comes to enjoy it too

Likes people, especially youth, and shows it in what she is, as well as in what she says.

Exemplifies integrity, so that complete and justified confidence is established. Develops her students unselfishly, is happy in their success, even if they surpass what she has done herself.

When the teacher understands the values and ideals held sacred by the homes of her pupils, their ways of living, the kind of equipment used and the pride the members take in their homes, she will have a basis for relating instruction to home situations. The following pages give some schedules and checklists for enabling the teacher to gain an understanding of her pupils and their communities.

Proforma for Studying the Community

A. The Community

1. Name of place District.
2. Population
3. Medical and Health Services available :

Hospitals	Nurses
Clinics including	
Family Planning	Dentists
Health Centres (including	
maternity and child health)	Others
Doctors	
4. Organizations in the Community .

Mothers' club	Bharat Sevak Samaj
Women's club	Social Welfare
Girl Guides	Others
Red Cross	
5. List of Religious Activities and Centres in the Community .
6. Educationl Opportunities in the Community .

Nursery School	College
Kindergarten	Library
Basic school	Radio
Night school	Govt. Publicity and Information Office
Elementary School	Plan Information Centre
High School	Others

7. Facilities in the Community for Recreation

Cinema	Swimming pool
Park	Stadium
Museum	Others
Exhibition	

8. Transportation Facilities in the Community :

Airways	Cycle rickshaw
Bus	Jutka(Tonga)
Train	Scooter
Taxi/Cars	Bicycle
Auto-rickshaw	Others

9. Public Utilities in the Community .

Housing	Garbage disposal
Water supply	<u>Sewage disposal</u>
	<u>Latrines</u>
Electricity	Others

10. Public Services in the Community :

Banks	Block development office
Post office	Police station
Registration office	Fire brigade
Telegraph office	Public trunk call office
Revenue office	Others

11. Shopping Facilities in the Community

Bazaars	Supermarket
Co-operative stores	Large stores
Fairs	Small stores
	Fair price shops
Shandies	Others
Weekly markets.	

12. Sources of Income for the Community :

Farming	<u>Professions such as teaching, law, etc.,</u>
Business	
	Others
Work in mills and industries	

A detailed and systematic study of individual high school pupils will give much valuable information to the teacher for understanding the pupils, their background and attitude and household practices. Given below is a Survey Form for the study of a high school pupils.

B. Study of the High School Pupils

1. My name..... My address.....
2. My school
 - Working hours in my school
 - Distance from my home to the school
 - Facilities for games in my school : Badminton
 - Basket-ball
 - Ring tennis
 - Table tennis
 - Others
- ... I go to school by :
 - Walking
 - Bicycling
 - Bullock cart
 - Tonga (Jutka)
 - For lunch :
 - I go home
 - The school provides lunch
2. (a) My lessons
 - My class subjects are :
 - The subjects in which practicals are arranged :
 - The lessons I like best are :
 - The practical work I like best in the school is :
 - The lessons I do not like are :
 - My reasons for not liking the lessons are :
 - i) They are hard
 - ii) I cannot understand
 - iii) Not interesting
 - iv) Nothing new is taught
 - v) I cannot practise in my home what is learnt in the school
 - vi) I do not like the group with which I am to work
 - vii) Others
3. My home and my family :
 - Name of my father/guardian :
 - Address of my father/guardian :
 - Occupation of my father/guardian
 - Name of my mother :
 - My mother works as :
 - Our family is nuclear/joint :

I have.....brothers and.....sisters
 I am the youngest/eldest/in between/in my family.

My relatives living with us are :

i)	ii)
iii)	iv)

4. About myself :

i) Physical :

My age	My weight.....
My class.....	My height.....

Games I play :

I sleep for...hours per day	Condition of my skin.....
I have the following health problems :	Condition of my posture...

(a)	(c)
(b)	(d)

I have had the following illnesses and accidents in the past :

(a)	(c)
(b)	(d)

ii) My food habits .

I am a vegetarian/non-vegetarian

My main meals during the day are .

(a)	at.....O'clock
(b)	at..... O'clock
(c)	at.....O'clock

I eat between meals : yes/no. If yes, list the foods and times :

The foods I like are :

When given foods I dislike,

- I do not touch them
- I throw them away
- I forcefully eat them
- I try to like them.

iii) My financial position :

The income of my father/guardian is..... Rupees/month
 I receive scholarship : yes/no.....If yes, Rs... /month
 I earn moneyyes/no

iv) My interest outside the school :

I choose my own friends...yes/no	I go to movies ..times a week/month
----------------------------------	-------------------------------------

I have.....friends
I belong to the following clubs :

(a)	(a)
(b)	(b)
(c)	(c)

My hobbies are : (a)
(b)
(c)

I spend.....hours per day per week at my hobby

On holidays, I :

Visit my relatives	Read books
Visit other places	others.

On long vacations, I go to :

(a)
(b)
(c)

The books I enjoy most are :

Novels—detectives-short stories-poetry-drama-biographies-adventure-history-science-comics-essays-film-reviews-women's magazines.

I like to read in English or.....language.

My favourite topics of conversation with my friends are :

(a)
(b)
(c)

I attend *bhajans*, temple, church, others.

v) My plans for the future :

After finishing high school my plans are :	
to go to college.....	to stay home.
to marry	others
to work.....	no plans.....

I want to go to college, because :

I want to work, because :

The type of work I want to do :

vi) Sharing responsibilities in the home :

I have responsibilities in my home for .	
cooking	cleaning home.....
washing clothes.....	grinding.....
caring for children.....	others.....
entertaining guests.....	(a)
shopping.....	(b)
cleaning utensils.....	(c)

I like helping in the house.....yes/no

The activity I like best in the house is.....

I try to improve appearance and household practices in my house because of what I have studied in Home Science classes.....
yes/no

I select my own clothes.....yes/no

I clean my own room.....yes/no

I get pocket of money Rs.....per month.....per week.....

I spend my pocket money in.....

vii) My relations with my parents :

I take my problems to .

My father.....My mother.....

Both.....Others.....

My parents discuss family matters with me.....yes/no

The things I do together with my family are .

(a)

(b)

(c)

The list of questions is long, but the answers will come only over a long period of time, as the teacher observes, talks and works with pupils in classes, participates in their social activities, and visits their homes.

In addition to the information gathered about the community and individual pupils, a "Check List of Housing Facilities and Home Activities" will be helpful to the teacher for getting a knowledge of home conditions. Such an understanding is essential for modifying teaching to meet the needs and interests of pupils better and for providing experiences, which will simulate more nearly home conditions. Replies furnished by pupils by filling the check list given below will show their housing conditions, the tasks which are entrusted to the pupils in their homes, how they are being done and which of them are being done and which of them are being enjoyed.

C. Housing Facilities and Home Activities

1. Housing facilities :

My house is rented.....owned..... flat type.....
large.....small.....electrified

My house has.....room(s).... a kitchen garden...
a separate room for me.....the following furniture :

My house has separate beddings for all the members.....

The type of furnishings used in my house are

2. Household appliances in my house :

Smokeless chulah..... Kerosene stove.....

Gas stove..... Gas oven.....

Lico oven..... Pressure cooker.....

Electric oven..... Steam cooker.....

Baking oven.....	Sewing machine.....
Ice box.....	Refrigerator
Radio	Electric iron
Charcoal iron.....	Food mixer.....
Food grinder.....	Grinding stone.....
Others.	

3. Fuel used in my house :

Fire wood.....	coal.....	charcoal.....
Kerosene.....	gas	electricity.....

4. Servants in my house :

We have servants yes/no	
If yes, we have servants for	
house work	cooking.....
washing clothes.....	sweeping the home.....
cleaning the latrines.....	others
We have.....	servants in our house.

5. Food preparation activities in my house .

The typical meal patterns are .

Breakfast :	Tea
TimeO'clock	Time.....O'clock
Items :	Items :
(a)	(a)
(b)	(b)
(c)	(c)
Others	Others
Lunch :	Dinner :
Time.....O'clock	Time.....O'clock
Items :	Items
(a)	(a)
(b)	(b)
(c)	(c)
Others	(d)
	(e)

We eat our meals .

together.....separately..... in the kitchen.....in the dining room

in the verandah.....Meals are served in my home :

On tables.....on the floor.....on wooden planks.....

We eat on :

thalischina plates.....banana leaves.....others.

We eat with our fingers.....yes/no

We use spoons and forks for eating.....yes/no

The beverage for children in our home is :

milk coffee tea cocoa ovaltine
fruit juice water

The wheat preparations commonly used in my family are ;

(a)	(d)
(b)	(e)
(c)	(f)

The rice preparations commonly used in my family are :

(a)	(d)
(b)	(e)
(c)	(f)

The preparations made with *dhals* and grams are :

(a)	(d)
(b)	(e)
(c)	

The vegetable preparations commonly used in our home are :

We use sweet preparations :

daily in our diet weekly only on occasions.

The sweet preparations used are :

(a)	(b)
(c)	(d)

We use fruits :

daily weekly occasionally never

We use fruits as : whole salad jelly cooked
otherwise

The pickles prepared in our home are :

(a)	(b)	(c)	(d)	(e)
-----	-----	-----	-----	-----

We use raw vegetables in our diet such as :

(a)	(b)	(c)	(d)	(e)
-----	-----	-----	-----	-----

We use baked foods in our diet such as :

(a)	(b)	(c)	(d)	(e)
-----	-----	-----	-----	-----

Baking is done in our home by :

I have planned, prepared and served the following food preparations in my home :

(a)	(b)	(c)	(d)	(e)
-----	-----	-----	-----	-----

I have helped my family in entertaining guests at the following situations :

(a)	(b)	(c)
-----	-----	-----

6. Activities in the areas of clothing in my family :

Clothing purchases for my family are made :

every week.....every month.....every three months—.....on
festivals.....once a year.....on other occasions :

Types of clothing purchased are :

for everyday wear (cotton, silk, etc).....for special functions

for girls.....for boys.....others.....

The clothing purchases are made by :

my father.....my mother.....both.....both and children.....
others.....

The amount of money spent in my family for a year on clothing is Rs.....
per member.

Our clothes are washed by :

ourselves.....servants in the home.....*dhobi*.....others.

We wash our clothes in the following way :

The sewing equipment we have in our home are :

(a) (b) (c) (d)

I know sewing :

by hand.....by machine.....basic stitches.....basic constructions.....mending.....embroidery.....other fancy work.....

I have made the following garments :

blouse.....petticoatspyjama.....frocks.....aprons.....
others.

7. Health activities in our home

I wash my hair.times a week.

We have individual towels, combs, soaps, in our home : yes/no If no,.....
of us share the towelcomb.....soap.....We have playground in or
near our home.....

Food in our home is protected from flies by

The type of latrine in our home is bore-holetrench.....flush.....
septic tank.....others.

The water supply for our home comes from :

(a) (b) (c)

Drinking water in home is boiled.....not boiled.....purified by.....
not treated.....

We have cockroaches in our home.....yes/no.

We have mosquitoes in our home.....yes/no.

When members fall sick in our home, we send them to the hospital.....
treat them in the home.....

We have a sick room in the home.....have a medicine chest in the
home.....

8. Home management activities :

We clean our house daily weekly monthly others

We whitewash/repaint our house every three months every six months every year mention other periodicity.

We arrange flower vases in room.

We do floor decorations like *rangoli*

We hang pictures in the following rooms .

We clean our utensils in the following way :

We clean our utensils with.....

We dispose of garbage from our home by

We have an account book for family accounts

We have a plan for daily work in the home

9 Childcare activities in the home :

I have the responsibility for looking after my younger brother younger sister others

Children in my home are encouraged to :

dress themselves feed themselves follow regular time for meals sleep regularly others.

I do the following activities for children

feeding dressing bathing arranging play telling-stories singing others

When the teacher understands the values and ideals held sacred by the homes, the ways of living, the kind of equipment used and the pride the members take in their homes, she will have a basis for relating instruction to actual home situations.

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CHAPTER 6

The Teaching-Learning Process

MAXIMUM effectiveness from teaching results from the skilful creation of opportunities and situations, as well as the provision of learning experiences in which pupils gain the knowledge, skills and attitudes necessary for meeting their needs adequately and solving their problems satisfactorily. Essentially, learning takes place through what the pupil experiences as a learner and not through what you as a teacher do.

The ability to create learning situations accrues from an understanding of the basic principles of learning and their implications for teaching. Some implications of the major principles of learning are stated below :

Principles	Implications
<i>I. Learning is continuous</i>	Begin where the learner is Relate the new to the old Adjust the pace to the learner's capacity. Reinforce learning by repetition and pleasant association.
<i>II. Learning is purposeful</i>	State objectives clearly and keep them always in focus. Direct learning towards attainment of desirable goals. Appraise and highlight the progress made towards the goals constantly

III. Learning is affected by physical and social environment

Make the physical facilities in the learning area conducive to learning such as temperature, humidity, lighting, ventilation, furniture and equipment suitable to the kind of learning process

Pay attention to the group dynamics, interactions between pupils at play in the learning process.

Provide a friendly and positive atmosphere for learning to take place.

IV. Learning is an active process involving use of the senses

Use several different methods calling for active participation of the head, the hands and the heart.

Make use of audio-visual aids to facilitate learning.

Provide for self-activity wherever possible.

V. Learning is affected by individual differences

Assess the learning capacities of the individual pupils in the class.

Plan the programme so as to be suitable for the average student.

For the more capable, additional provision should be made in order to make the programme challenging.

For the less capable, make the programme.

Let each pupil be her own standard for evaluating her progress.

All learning results from experience, but the quality of learning is influenced by the quality of the experience undergone. Therefore the selection and provision of experiences, clarification of goals, demonstration of skills and encouragement of pupils' participation are of utmost importance in the learning process.

Statistics indicate that 90 per cent of what we do, 50 per cent of what we see and hear, and 10 per cent of what we read, are retained. Therefore a variety of experiences constitutes a favourable medium for learning. Group work, demonstrations, socio-drama, discussions, field trips, movies and slides, radio and television programmes, recordings, cartoons, black board pictures, books, newspapers, magazines, charts and festivals and home community projects are effective activities and aids in teaching.

It is necessary that experiences are offered not only in the classroom but also in the homes and community. A programme which provides for a variety of experiences under different conditions is likely to result in more effective learning than one which provides a series of prescribed classroom instruction as stated in the syllabus. Therefore teacher should utilize all the available potentialities for

selecting experiences based on the close relationship between school, home and community.

Learning is changed behaviour and the learning process is activity. Continuous changes in attitudes, skills and abilities and knowledge are evidences of learning. After learning has taken place, a person is different. Home Science teachers deal with experiences very closely related to pupil's home conditions. The extent to which pupils change practices in this area depends upon the effectiveness of teacher, her pupils and her school in interpreting their programme to the public.

We can say that learning has resulted from an experience, only if the pupil actually changes behaviour in relation to the situation. Supposing one of the goals in a nutrition class is consumption of green vegetable, the teacher cannot consider herself successful if her pupils, after the conclusion of the unit, could only write down the foods to be included in their daily diet. Her teaching is not complete, until she finds evidences that they are actually eating the foods essential for an adequate diet. While applying the principles of learning to the teaching-learning situation, the teacher may confront some problems. Some of those are discussed below.

Individual Differences

Pupils differ in rates of learning, interests, previous knowledge and experiences, abilities, intelligence and emotional reactions. Adapting class work to these differences needs great skill. Some pupils may be keenly interested in sewing ; others may study it only to pass an examination ; some pupils might have had previous experience in cooking in their homes ; some pupils may be nervous, while others may be reserved. The teacher will have to meet all varying situations.

Discipline

Pupils are in school to work towards goals of good citizenship, economic efficiency and self-realisation. Due to a variety of causes they may sometimes deviate from working towards these goals, leading to behaviour-problems. Until the cause is determined, the teacher cannot proceed with her work. Sometimes the teacher may be the cause for the disorder, at other times one or many pupils may be at fault, and on certain occasions both the teacher and pupils may create discipline-problems. In some other instances, the cause may lie in conditions outside the classroom such as weather changes, the excitement before a big event, unfair school rules or criminal and political upheaval in the community.

Lack of teaching skills caused by inadequate knowledge of the ways children learn, lack of preparation for class lessons, dull and monotonous classes which have no varied activities, assignments not suited to pupils' needs and understandings, poor classroom organization may also lead to discipline problems.

When discipline is disturbed by the pupils, the teacher may try to restore it by maintaining an attitude of objectivity ; determining whether the problem is a

symptom of deep personality disturbances, or conflicts between the pupils, or resistance to school rules. Including the pupils in planning rules, carrying out class routines and deciding what punishments are to be used and when they are necessary, will help in maintaining discipline.

It is natural for a teacher to react negatively to any pupil who makes her life difficult, and therefore maintaining an objective attitude is not easy. However, the teacher is one among the several adults who are responsible to help pupils grow. Therefore, she should consider the pupil sympathetically and extend all help, kindness and consideration.

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CHAPTER 7

Methods of Teaching Home Science

The methods of teaching determine in a large measure to what extent, and how effectively the teacher achieves the selected objectives. Before proceeding to select the methods for teaching, a teacher needs to appreciate that education is the quickening and cultivation of the head, the heart and the hands. Such realization would avoid teaching being pressed into the moulds of examinations and 'coverage of the syllabus' and thus becoming mere transmission of facts. Education should go beyond the acquisition of knowledge, to create the ability to analyse, synthesize, evaluate, and apply information. This ability can be developed only through the use of creative method of teaching.

Advancement in the understanding of the principles of learning and the discovery and development of new teaching aids, have made available a large spectrum of useful creative teaching methods—Problem-solving, Discussion, Role-playing Project, Demonstration, Laboratory, Field Trips and so on. From this wide choice, the teacher would have to select those methods which will meet the needs of the pupils, the lesson and the situation.

1. Problem-solving

Life consists of a series of problems. One has to make decisions constantly—when to wake up, what to do first, what to wear, what to study and whom to make friends with. Every one encounters problems pertaining to personal life, the school and family. Therefore problem solving experiences are important learning tools and help in pupil development.

The best way for a pupil to solve every day problems is to learn to meet them under the guidance of an experienced person. A teacher needs to expose her pupils

to home-like situations, stimulate them to identify the problems, make plans to solve them and test the efficacy of the solutions tried. Mere knowledge of facts will not help to make wise decisions. Facts must be collected, studied and used to gain ability to meet the problems of life.

Steps in Problem-solving

The problem solving method will be purposeful if the following steps are carried out successfully :

1. Recognize and meet the problem
2. Analyse the situation
3. Collect facts relating to the problem
4. Evaluate the facts and discard those which are irrelevant.
5. Decide on a solution
6. Apply the solution, and
7. Evaluate the results.

The application of the above steps is illustrated by the following example. A pupil finds that she has to cook a meal in her home when her mother is out of town. She takes stock of the food position in the home and the menu to be cooked ; visits the bazaar ; looks at different kinds of vegetables and foods ; compares their cost ; settles the items of the menu ; selects and buys the foods required ; and prepares and serves the meal to her father and relatives. She feels rewarded, when they say, 'the meal is good'.

In the above example, the pupil recognized a problem : the need to cook a meal. She analysed the situation by taking stock of the foods remaining in the home. She collected the data by investigating the availability and cost of foods ; she evaluated the facts and decided to buy certain items ; she decided on the menu and prepared the meal. By serving the meal to her family, she tested the results of her decision and action.

The teacher needs to adopt similar steps in the classroom teaching procedures in the following manner :

1. Help pupils to recognize problems in the classroom, home and community and meet them.
2. Lead them to want to solve those problems.
3. Assist them to understand all aspects of the situations ; make sure that they weigh each fact carefully.
4. Stimulate them to find the necessary information.
5. Guide them in arriving at a solution as a result of their thinking.
6. Observe them while applying the solutions.
7. Encourage them to evaluate the results.

Problems may arise out of the class or from pupil's experience. By studying the pupils and their homes, the teacher can discover problems which can be utilized in her teaching. Some situations in which the problem-solving method can be applied are : use of money, selection of food, preparation of meals, preservation of food, selection of clothing, washing clothes, beautifying the home, care of rooms, taking care of the younger brothers and sisters, personal health and appearance, and making and maintaining friends.

Out of these, the teacher will have to choose such experiences as will be of greatest value for the pupils towards achieving the ultimate goal, namely, satisfying personal and family life. If the answers to the following questions are 'yes', then the teacher can be confident that she has chosen the right problem(s).

1. Is the problem of interest to the class ?
2. Does it fulfil a need ?
3. Is there a desire to solve it ?
4. Is it challenging enough but not too difficult ?
5. Will it demand critical thinking ?
6. Does it stimulate a situation faced in the pupils' home, and
7. Will it lead to a learning experience ?

Problems differ according to the purposes for which they are used. Some are developmental problems which are useful mainly to furnish information or derive a new principle ; others are 'judgment problems' ; and yet others are 'planning problems' which help pupils think creatively,

Through solving developmental problems, pupils develop abilities to understand general principles learned in the class through talks, illustrations, textbooks and home work and put them to use. Through solving judgment problems, pupils gain ability to judge and make decisions. Weighing values, analysing carefully and evaluating facts and making conclusions without bias—all these call for clear thinking which is developed in the process of making decisions. Through planning problems, pupils acquire managerial ability. Pupils learn to plan their day, lessons, recreation and ways of fulfilling home responsibilities. Traditionally, the teacher does much of the planning ; but pupils' participation in planning the educational experience, is a sign of good teaching. Planning problems should be accompanied by developmental and judgment problems through which knowledge can be gained and judgment effected.

A problem should be expressed clearly and completely so that all the members of the group can understand it. The pupils should not be satisfied with a solution, until they have considered all aspects and secured all the facts available. When problems are being solved, it is essential that pupils evaluate the information presented as well as the final results. The class must arrive at its own solution and make plans for testing it. The testing can be done by consulting references, talking

with people, getting to know facts, group judgement, examining whether the solution will apply to other situations, and by repeating the plan to see whether it is reliable. If the solution is satisfactory, then the pupils have learned the lesson and can move into the next experience.

2. Discussion

Discussions occur whenever a plan or decision is to be made by a group of people. In the class, discussions are useful to stimulate group thinking. During discussions, pupils learn to state their points of view and express their ideas frankly. Discussions are more effective than a lecture in clarifying thinking and promoting pupils' participation. They can be conducted with the teacher as the leader and the pupils participating in it, or with pupils divided into small groups, each having its own leader. The steps involved in using the discussion method(s) are .

In the case of problems :

- to locate and define problems of common interest and significance ;
- to work together to find ways of solving the problems ;
- to allocate responsibilities for the solutions suggested ; and
- to evaluate the effectiveness of the suggested solutions and their implementation.

In the case of plans for projects and programmes :

- to decide on the programme and the particulars such as date, time and place ;
- to enumerate the jobs to be done in organizing the programme ;
- to allocate the duties to the members of the group , and
- to evaluate the results.

The discussion method plays an important role in the development of the social behaviour of the people and thus prepare them for citizenship in a democratic society. The concomitant learnings resulting from the use of the discussion method are:

1. Getting acquainted with other people ;
2. Learning ways of working with others ;
3. Developing respect for others' ideas and feelings ;
4. Learning to put the interest of the group above self ,
5. Developing a sense of commitment for accomplishing the work of the group; and
6. Realizing that the product of group effort is superior to the best efforts of any single member. .

Carrying on the Discussion

Pre-requisites : Comfortable space for the leader and the entire group should be provided in the classroom, either around a table or on the floor. Ventilation, lighting and other physical facilities should be ensured. Accessories such as blackboard, chalk, duster, pointer etc., should be kept near at hand to facilitate discussion. All the members must be able to see each other and the teacher or leader well. An informal atmosphere needs to be maintained.

Role of the Leader . The leader needs to make her own preparation for the discussion. She must keep in view the duration of the class period and encourage every one to take part and make their comments brief

She should start with the introduction of the subject and give a full account of it. She must allow time for the group to warm up, and keep the discussions from deviations. At the same time she should maintain the spirit of the members high, by encouraging informality, ease of conversation and humour. She should ensure that all ideas are listened to with respect and appreciation, taking care not to impose her own ideas. After every ten minutes or so, she should draw the loose ends together, in a pleasant manner, as if to say, 'Let us see where we have been going'. She needs to interrupt speech makers as tactfully as possible, with remarks such as : 'While we are on this point, let us hear someone else's views'.

In discussion, questions are not generally put to a particular group member. They should flow from member to member, and not from one member to the leader, or from the leader to another member, unless there is somebody trying very hard and determined to put her ideas any way. All discussions should be closed with the accurate summaries.

Conditions Necessary for Effective Discussion

People think together effectively only when conditions are favourable by giving each member :

1. A sense of belonging ,
2. A share in planning the goals ;
3. A feeling of contributing to the group endeavour ,
4. A knowledge of the progress made towards the goals set ; and
5. A feeling of confidence that she can say what she feels.

There are many variations of the discussion method. Some of the most frequently used types are :

1. Panel discussion
2. Discussion 66
3. Buzz session
4. Brain-storming.

Panel Discussion

Panel discussion is a discussion among a selected group of four to six

persons, large enough for variety and small enough for purposeful deliberations. The members who are usually eminent in their fields, present various views before an audience which joins in the discussion subsequently. For example, if the topic is 'city A is becoming overcrowded leading to insanitary living conditions. How can this be improved?'—the members of the panel for a discussion will include specialists on housing, town planning, and sanitation, as well as the city administrators like the municipal commissioner. The purpose of a panel discussion is to get important facts from different angles, to stimulate thinking and lay a basis for wide participation. Therefore, no speeches are made by the members or by the leader, but only informal conversation takes place.

Steps in Conducting a Panel Discussion :

1. Select a timely and significant topic. State it clearly, preferably in the form of a question.
2. Select members carefully—pupils or members of staff with good voice, clear and concise manner of speaking, and willingness to share ideas.
3. Give leader and members time for preparation.
4. Arrange for a meeting of the leader with panel members in advance to get a common understanding of the topic, methods and individual roles.
5. Allow at least one period for the panel discussion. Panels should never be rushed.
6. Ensure good seating facilities for members and audience.

Procedure : The chairman starts by introducing the members of the panel to the audience giving their background and experience. She then states the problem to be discussed and explains how she has organized the discussion procedures. After thus opening the session, she proceeds informally drawing the members into conversation, among themselves, but loud enough for the audience to hear. The members present their views on various issues pertaining to the topic, taking not more than two to three minutes at a time. When the discussion among the members of the panel has been carried on for 20 - 30 minutes, a free discussion follows between them and the audience. At the conclusion of the prescribed time limit, the chairman summarizes the panel discussion and brings out the important points emphasized,

Discussion 66

The name Discussion 66 arises from the fact that six persons meet for six minutes to discuss a problem or plan a project. Each member is given a minute to express a point she considers most important. When the teacher feels that she must get the opinion of a majority of the pupils in a minimum time, this method proves highly useful. For example, when the teacher finds that the school shall be

celebrating the 'Parents' Day' very soon, she resorts to Discussion 66, in order to get the maximum suggestions from the pupils to inform their parents about the Home Science programme.

Buzz Session

In this method, the class breaks off into pairs to discuss an issue and changes partners at the buzz (ringing) of a bell. At the end of the session each pupil records the number of suggestions she has heard. Out of that collection, priorities will be assigned. Thus Buzz session also helps the teacher to get as many suggestions as possible to solve a problem regardless of their being the best. For example, a nearby village has had a terrible outbreak of fire. The teacher wonders in what ways her pupils can help the families thus rendered homeless. A Buzz session will give her quickly a large variety of ideas.

Brainstorming

As the name suggests, the brains of the participants are stimulated to create a storm of ideas and suggestions regarding the topic, without any deliberation to find whether or not they are meaningful and purposeful. In fact, they are encouraged to mention any idea that comes to their minds, however funny. For instance a problem like 'The Home Science department needs to raise money to buy a pressure cooker, how can we raise the money ?' will invite a storm of suggestions from the pupils. The principle behind this method is that when the brain is let go thus without social inhibitions, it would be able to give expression to some of the most useful and practical suggestions. But it requires that a person-to-person informal relationship exists between the teacher and the pupils and amongst the pupils themselves, so that they can speak freely.

3. Role-playing

Role-playing is a spontaneous acting out of a situation by two or more persons to show the emotional reactions of the people in a given situation as perceived by them. Role-playing is unrehearsed drama emphasizing the role a person plays. This 'acting out' of situations is sometimes designated as socio-drama. Role-playing can be used effectively in Home Science classes, specially while teaching the area of human relationships. The principle on which this method is based is, that if you try to act out a person's behaviour, you begin to feel as he feels, when he acts that way and understands his feelings by putting yourself in his place.

Role playing helps pupils clarify and overcome their feelings about a situation. When pupils play as if they were really facing a particular social circumstance, or as if they were persons different from themselves, their understanding goes beyond what is obtained through reading a book or discussing in the class. By spontaneously playing out a problem situation, pupils can secure not only an intellectual understanding of the problem, but also experience emotions similar to

those felt in the social relations of life. Furthermore, they get courage to face new problems.

The steps in role-playing can be seen from the following description. The teacher says to the pupils :

"From time to time we have talked about the way people act towards each other. Today we are going to try something new. I am going to tell you the first part of a story about a family. In the middle of the story, I will stop and some of you will be chosen to play out the ending of the story, as you conceive. I know many of you are good actors. This is going to be an interesting experience for all of us.

"When we begin the acting we will not have any written script or portions to be memorized. Instead, each one will be told which character in the story she is to play, and she has just to act and talk the way she thinks that character would act and say.

"As I tell you the story, listen carefully, so as to know who the characters are. I will write their names on the board to help you remember them. This is the story. There is a family with father : Ramakrishna, mother : Sitadevi, grandmother : Lakshmi, aunt, Kamala, brother : Ashok and sister Jaya. Jaya is studying in the final year of high school. Mother Sitadevi, thinks it is high time to get Jaya married. She gathers information on the possible suitors. She and grandmother discuss with the father about Jaya's marriage. Jaya's father thinks that Jaya should be consulted. But the grandmother and aunt Kamala think that it is not necessary. At this juncture, Ashok and Jaya join the group "

At this point the teacher says, 'All right I am going to stop here. We will choose six girls to be Ramakrishna, Sitadevi, Lakshmi, Kamala, Ashok and Jaya, and let them conclude this story'.

This problem situation is of interest and importance to the pupils. It is one they can understand and consider seriously. The teacher tells enough of the story and the characters to set the stage. Six girls, who are sure to enter into the play, are selected, so that the initial socio-drama is successful. The teacher should take an active part in the selection.

The teacher then redefines clearly the problem and the role of each pupil, and says, "Our scene opens with the family discussing Jaya's marriage and what they should do about it. Mother thinks that she should be married. Father thinks that Jaya's opinion should be elicited. Grandmother thinks it is not necessary. Jaya and Ashok now enter." Here the teacher pauses and continues, "Before these pupils begin, we must be sure that the rest of the class follows intently and be serious about the drama. We must be very attentive, while the actors are solving the problem so that we can discuss it afterwards." Teacher then defines the role of the audience. One or two pupils who act silly in the audience can destroy the

atmosphere of the socio-drama. During the drama, it is sometimes necessary for the teacher to remind the audience to help actors to stay in their roles.

Teacher : "Let us begin. Perhaps father can speak first. Behave as if you are the real members of the family." (The teacher may even suggest here the first remarks, so that they may know how to begin.)

The pupils begin conversing first hesitantly and then more and more spiritedly. Various arguments come out. Jaya is adamant—she is determined to go to college. Ashok supports his sister vigorously. Grandmother tries to convince others that Jaya's marriage should be the immediate step. Father is inclined towards sending Jaya to college. Finally, the family agrees that marriage can be considered after one year.

When the actors thus seem to decide upon a solution, the teacher stops the socio-drama and congratulates them on the realistic way in which they had acted and compliments the class for being attentive listeners. Then she asks the pupils, "What do you think about the solution"? The pupils express their views. As the result of the discussion which follows, various aspects of the solution can be further taken up.

Throughout the socio-drama and subsequent discussions, many pupils participate and express freely their opinions, and thus high interest is maintained. Role-playing brings to life a number of problems which pupils need to face and clarify in their own minds.

In teaching Home Science, role-playing and socio-drama can be used at all age levels. Here are some topics which can be taught best through spontaneous acting :

1. Introducing friends.
2. Saying good-bye to a member of the family at the railway station.
3. Inviting relatives to a picnic.
4. Purchasing something from the market.
5. Taking a trip on the train.
6. Entertaining guests
7. Helping a person who has lost her way.
8. Behaviour towards new members coming to the class
9. Receiving a gift from a friend.
10. Situations of caste conflicts.
11. Behaviour when insulted by somebody.
12. Behaviour towards someone who is unkind.
13. Practising health habits.

14. Serving a meal, and
15. Functioning of pupils' committees.

There are some pitfalls in using role-playing. If the actors cannot project themselves fully, when a situation is not real to the team, or they are self-conscious, they cannot be spontaneous. When the audience does not get into the spirit of role-playing and when pupils giggle and disturb, or are indifferent, the situation cannot be discussed after the drama is over. In these circumstances, role-playing will lose its purpose. Also when role-playing is over-used, or frequently or inappropriately used, it is likely to fail.

For the use of role-playing as a method, a great deal of time needs to be given—time to set up the situation ; to describe the characters , to act the scene ; and to discuss the feelings and actions depicted. Therefore, it should not be used frequently. Role-playing is not appropriate to display physical skills only, because it aims mainly to help in the understanding of feelings and emotions.

4. The Project

The project method emphasizes learning by doing. There are many stages in the organization and completion of projects. The first stage is called *purposing*. In this stage the teacher inspires the pupils to select suitable projects, which should arise out of their needs, interests and aptitudes. The teacher should never force a project on the pupils. But a good teacher will know what his or her pupils can do and lead them to select such projects for which they have the talents, urge and capacities. The pupils will then be able to decide the project themselves. Well begun is half-done. The selection of a suitable project paves the way for success.

The next is an important stage, namely, *planning*. Planning should be done by the pupils under the active guidance of the teacher. They should be encouraged to ask the questions, *why, what, when* and *how* of the project. Planning should be flexible. Sometimes pupils will discover at this stage that they had chosen a difficult or useless project and may like to change. The wise teacher, remaining in the background, will have a constant watch over the progress of all stages of the project. She will then be able to forestall the pitfalls in the execution.

After proper planning, the pupils must begin to execute their plans. At this stage of *execution* the teacher's help should be the minimum. The teacher should see that the pupils get, in time, all the necessary facilities for the execution of the project. If big projects such as school-lunch are undertaken, the teacher will need to split them up into smaller units, such as planning menus, food preparation and serving food, and assign them to different squads in a class.

At the stage of execution also, pupils may realize defects in their planning. At such instances, the teacher will have to come to their help to rectify the flaws and avoid frustration.

The last stage is *evaluation or judging*. When the project is completed, groups report on the work done by them. Then the class or squad will evaluate the work accomplished. For the teacher and pupils, evaluation will help in planning future work in a better manner.

All subjects in the curricula do not lend themselves to be learned through projects. Projects such as school-garden, cleaning the class, soap-making, paper making, maintaining a beehive, setting up a museum, excursion, school magazine and arranging a meeting can be ably carried out. The project method leads the pupils towards integrated and purposeful learning. At present in most of our schools each subject is taught without any relation to the other. Pupils get well-packed or parcelled information in the different subjects with little or no emphasis on the unification of such knowledge for application. The project method helps to remedy this defect.

Pupils get the ability to plan their work, and then accomplish their plans. They develop the ability to pull together and to work harmoniously. They develop initiative and self-confidence. Learning becomes permanent through doing.

5. Demonstration

Demonstration is used to provide information, create interest and develop standards of work by showing how a process is carried out. Demonstrations can be short and informal such as demonstrating how to thread the machine, or long and formal as in the case of a demonstration on flower arrangement for a large audience. Demonstration can be given by the teacher alone, or with one or more pupils. The shapes of a good demonstration are :

- (a) preparatory period, when the need for and purpose of the demonstration are clarified ,
- (b) the demonstration itself ; and
- (c) follow-up period to practise the process or skills demonstrated,

A. Successful demonstration will have the following features :

1. The teacher or demonstrator will have a pleasing appearance, manners and self- confidence.
2. The language and subject-matter will be selected according to the learning capacity of the group.
3. The demonstration will show the steps in the process accurately, clearly definitely and in proper sequence. The steps will be listed on the blackboard as they are being demonstrated in order to enable the pupils follow them closely.
4. Explanation of the steps in the process will accompany the actual doing. The demonstrator will talk and ask questions, while the demonstration is on, to stimulate the group to think through the process with her.

5. The procedures shown and the materials, equipment and articles used will be similar in size and kind to those the pupils use. At present, in most places, garment making is demonstrated on a doll ; patch work is done on a miniature sample. These tend to give unrealistic ideas to pupils. It will be more effective to use a real garment for these purposes.
6. The demonstration will be conducted not only in its normal size and materials, but also in the same relative position in which the pupils will repeat the steps afterwards. For example, if the teacher stands in front of the class facing the pupils and demonstrates the basic stitches, the direction of her movements will be a lateral inversion of those of the pupils. Therefore, the demonstrator will have to be positioned in such a way that her right and left arms are in the same relative positions as those of the pupils in her class.
7. Only one process will be demonstrated at one time. Every demonstration will have one, and one and only important idea or method to teach. Until that fundamental process is thoroughly understood, it is not advisable to introduce variations.
8. Demonstrations need to be seen clearly by all the pupils in the group. Lighting should be adequate and seating comfortable. The demonstrator and her actions will be the centre of the picture.
9. Equipment and materials required will be carefully selected and kept ready within easy reach and in the order in which they are needed. Wasting time in hunting for materials or equipment is poor demonstration, and the class will lose interest. One of the pupils may be an assistant to arrange and get the articles needed and another to clean and return them after use.
10. Opportunity will be given during the demonstration for asking questions from the group. But the questions will not be allowed to confuse the group or lead them away from the main point.
11. Steps in the process demonstrated will be summarized at the end, preferably by the pupils themselves. The pupils will have a chance to inspect the finished product. For this purpose, articles made or the products resulting during the demonstration, will be left on the table or bulletin board for inspection, which will help to refresh the steps and motivate pupils towards action. For example, in a class on 'foods', pupils will have opportunity to taste the items prepared.
12. Additional suggestions will be given to practise the process demonstrated.
13. Mimographed leaflets or bulletins would be handed out to supplement information, wherever possible.

14. Visual aids such as charts, pictures, models, samples and finished products will be displayed in advance to enhance understanding.

Following a demonstration, pupils must be allowed to evaluate the articles, processes or results of work. In formulating personal opinion on the basis of comparison, pupils develop good judgement.

Demonstration should be followed by practice under close supervision. If the practice accompanies the demonstration step by step, learning will be facilitated. Repetition of the practice in the class and through home experience, will be needed to develop competence.

Evidence of success of demonstration are :

1. Interest of the group is voluntary and continuous.
2. Many questions are asked regarding the application and use of the process demonstrated.
3. Follow-up work is successful with least supervision from the teacher.
4. Only few pupils need individual help during subsequent practices.

6. Laboratory

Since pupils learn by doing, experience in the laboratory is an important part of their total learning. Laboratory experiences under the supervision of the teacher, provide the first lesson in the development of manipulative and managerial skills. They facilitate acquisition of the needed information, spirit of enquiry and objectivity in observations.

Laboratory experiences have three values : (i) Productive (ii) Experimental and (iii) Observational. Carpentry, food preparation and clothing construction are examples of experiences which yield *productive* values and develop manipulative abilities in managing resources. *Experimental* types of laboratory experiences are used to determine a principle or illustrate it. For example, removal of ink stain from the blouse. The *observational* type of experiences such as observation of child behaviour, study of fabrics and comparison of different soaps are used to develop ability to recognize characteristics and draw conclusions.

In all these three types, a laboratory lesson has three phases (i) planning period (ii) doing or work period and (iii) summarization and evaluation period.

In the *planning* period, pupils and teacher develop together the plans for the whole experience. They set the goal (s), outline the procedures to be followed, and clarify the steps for the evaluation period. These will require time and efficient management. Accordingly, the teacher will have to plan every step carefully in advance and help the pupils more smoothly towards the realisation of the objectives.

During the *work* period, experimentation, production and observations are carried out. The teacher supervizes individual and group work, which is being executed according to the plans evolved. She is mindful of the needs of all and gives her

assistance and attention first to those who need them most ; she is alert to everything that is going on in the classroom. This is a period for individual teaching and for developing good working standards. Therefore, great care must be paid to watch the posture, methods of work and testing, orderliness, hygienic practices and safety. This is also the time to stimulate pupils to greater achievements; by commenting on their accomplishments and challenging them to higher performance.

During the third period, products and methods of work are evaluated by the pupils and the teacher and discussed. The accomplishments will be summarized and judged and the principles clarified.

Some laboratory experiences can be concluded in one period but more often, when the periods, are of only 40—45 minutes' duration, two consecutive periods must be combined for one laboratory experience. Several such combined periods will be needed to complete larger units such as, 'food preparation.' As frequently as possible, laboratory work should be carried out individually. Each pupil must have his own materials to work with.

Evidence of successful laboratory lessons are :

1. Pupils progress smoothly in the activity period.
2. Pupils work independently and co-operatively.
3. Pupils work without wasting time.
4. Pupils share responsibility for routine work.
5. Interest and attention are maintained throughout.
6. Class evaluation of the entire activity is objective.
7. The end products are satisfactory.
8. Desired pupil development occurs.

7. Field trips

Learning by experience calls for many experiences outside the school building. 'Observe real things rather than read about them,' is a principle underlying field trips. Field trips are planned to develop appreciation and understanding of facts as they really are and to secure information at their source. Field trips provide good opportunities to teach social customs and help to develop personal traits of courtesy, co-operation and dependability. A study of furniture demands one or two visits to the carpenter's shop. To understand the basic principles in wise marketing, pupils must be taken for shopping. A discussion period for planning the trip, the trip itself, and a second discussion period to summarize and evaluate what was seen, are the steps in field trips.

During the planning period, the teacher will first acquaint herself with the place to be seen either through personal visit or by collecting the requisite information. She will then set the objectives for the trip, clarify to the pupils the purposes, and guide them in making careful plans for travel and stay. Plans for securing the needed materials will also be outlined. The class will consider those

behaviours and social customs which should be observed during the field trips, etc. etiquette in others' homes, ethics of shopping and courtesies to be shown to people. The trip itself is like the activity period. Plans are carried out carefully and completely. The teacher mingles with the pupils informally throughout. At the same time, she guides them through the learning process. The third is one of evaluation to discuss, comment, compare and draw conclusions.

Evidence of success of field trips are :

1. Purpose has been accomplished.
2. Pupils are happy and orderly.
3. Little or no time is wasted.
4. Participants are enthusiastic during evaluation.

There is no hard and fast rule as to which of these methods a teacher should select to teach a particular lesson. The more the variety of methods used, the better will be the progress towards pupil development.

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CHAPTER 8

Use of Audio-Visual Aids In Home Science

IN teaching we are concerned with communication of ideas and information. There are two main media of transmitting facts . (i) the spoken words and (ii) the written words and pictures. People learn more, learn quicker, and retain knowledge longer from what they see, rather than from what they hear. An old proverb says :

If I hear, I forget
If I see, I remember
If I do, I know.

The most effective communication is a combination of hearing, seeing and doing. When visual aids are used along with demonstrations and talks, teaching becomes more effective. Audio-visual aids influence greatly the manner in which a teacher motivates the pupils, devises learning situations, and employs methods of teaching. Therefore, the use of audio-visual materials makes learning experiences concrete and meaningful, and brings about greater understanding, increase in interest and improvement in attitudes.

An audio-visual aid is any mechanical or non-mechanical medium which appeals to physical senses of sight and hearing, intended to clarify and intensify the learners' mental image of the object, process, or event which is being taught. Broadly interpreted, the audio-visual methods in teaching include the use of both traditional and new instructional aids, which as a result of the development of modern techniques based on scientific experimentation and research, have facilitated the learning process. Remembering subject-matter becomes easy, if it is well understood, and understanding is enhanced when instructional aids are used in education. Intelligent use of audio-visual aids saves also the teacher's time in the classroom.

Purpose of Audio-Visual Materials

Audio-visual materials help :

1. Develop accurate concepts from unfamiliar experiences outside the pupils environment.,
2. Show new ideas in a familiar environment to meet the particular needs of a programme.
3. Demonstrate the skills needed for specific tasks ;
4. Make learning more realistic ;
5. Develop new attitudes, appreciations and interests ;
6. Set standards for products and practices ;
7. Facilitate the teaching - learning process and evaluation ;
8. Teach pupils of varying abilities and capacities ; and
9. Add joy and interest to learning.

Classification of Audio-Visual Aids

The universally accepted classification of audio-visual aids is Dr. Edgar Dale's 'Cone of Experiences' shown pictorially in figure 3.

The cone itself is a visual aid, which helps to explain the inter-relationships of the various types of audio-visual materials and illustrates their 'positions' in the learning process. At the bottom of the cone, Dr. Dale has placed the most concrete and direct experiences and at the top, the most abstract. From the bottom, these experiences are :

1. *Direct, Purposeful Experiences* : These are real life situations, as we experience them first hand : going to the bazaar, preparing a meal, repairing a piece of furniture, giving a party at school for parents and such.
2. *Contrived Experiences* : A contrived experience differs from the original in size, or complexity, or in both. Models, diorama, mock-ups and cutaways are included in contrived experiences. All these devices help to bridge the gap between theoretical learning and translating that theory into practice.

Models are the representations of objects, either small or large, which can serve as a substitute for the real objects. In Home Science, models of rooms, kitchen, labour saving devices, gardens and foods can be used to aid teaching.

Diorama is a colourful, three dimensional miniature model designed to give an illusion of reality. It can portray stories, historical events and scenery.

Mock-ups and cutaways are simplified models designed to show the parts or work pattern of the whole. They have particular value for instruction on how to operate machines, how to use instruments and a host of similar activities.

3. *Dramatized Experiences* : Dramatized experiences help to get closer to realities which are not available at first hand. For example, giving first aid to a drowned person or buying articles from a shop or a *mela* (shandy).

EDGAR DALE'S CONE OF EXPERIENCE

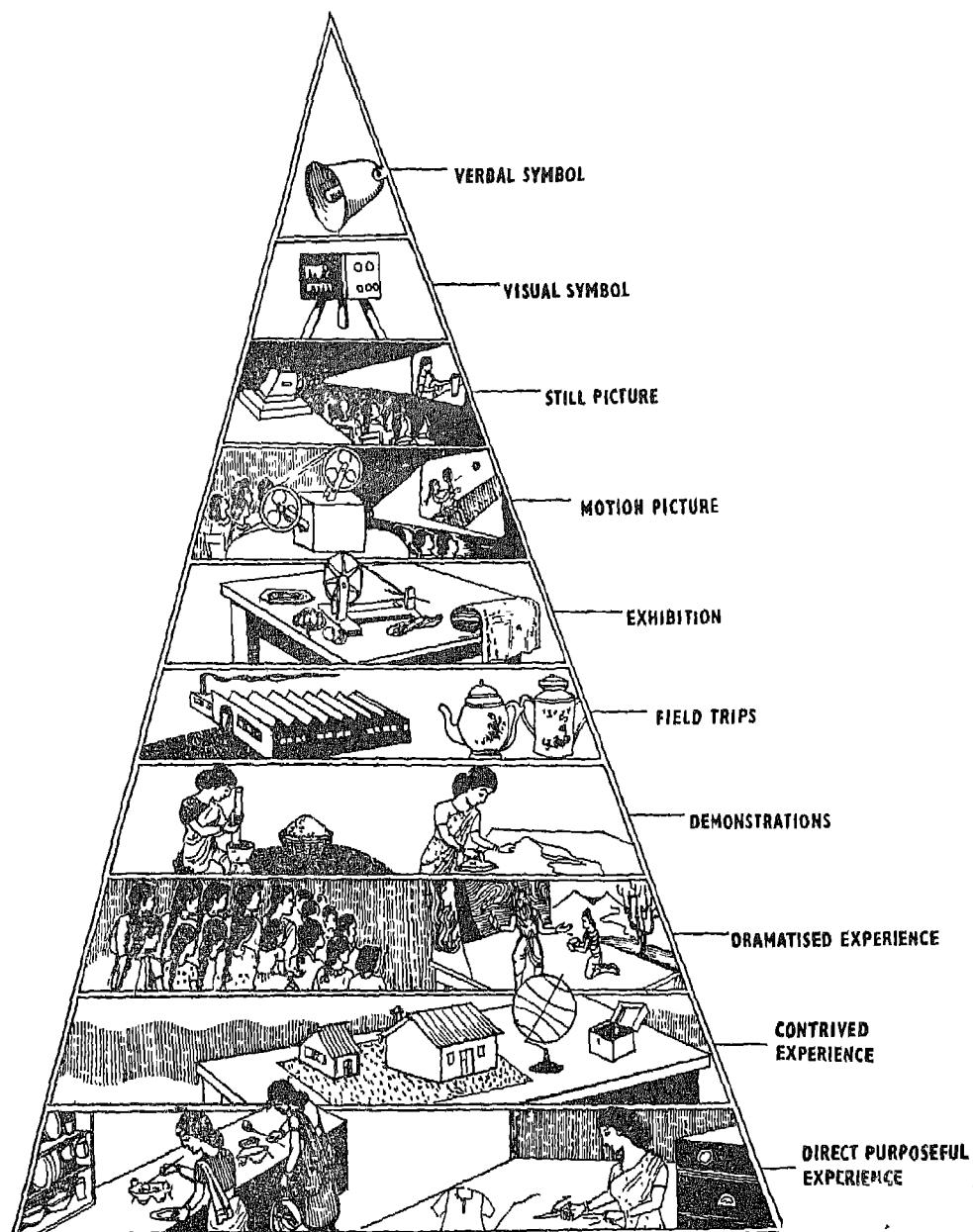


Fig. 3

4. *Demonstrations* : A demonstration is a visualized explanation of an important fact, idea or process. For example, practical lessons such as : making a toy, applying a bandage, drafting a blouse pattern and ironing a garment.

5. *Field Trips* : Field trips are undertaken to help pupils, observe people, places and action programmes. Pupils might be taken to a bakery to see how bread is being made, to the water pumping station to see how water is being purified and pumped, or to a building to see how a house is being constructed.

6. *Exhibits* : Exhibits are used to display a variety of materials coherently arranged pertaining to a theme. They stimulate pupils to open up new problems and question or to consolidate what is already learnt. Exhibits planned and prepared by pupils with the guidance of the teacher should be encouraged and preferred. Exhibits such as different types of fabrics and garments, equipment for the care of sick persons and children's recreation provide good experiences in Home Science classes. Exhibiting the pupil's accomplishments such as the knitted garments, will stimulate interest attention and appreciation among the pupils.

7. *Bulletin Boards* : The bulletin board is useful in initiating units of work, stimulating new interests and problems, posting pupil's work and displaying maps, charts and similar materials. For example, in the Home Science class, the bulletin board can be used to depict the essentials of good health, fresh air, balanced diet, exercise and rest.

8. *Motion Pictures* : Motion pictures can re-construct a period with dramatic intensity and realism and help to re-live history. They facilitate understanding of other people, their land, culture and values as well as history and science. The use of motion pictures, is desirable in developing manipulative skills and applying them to improve quality of products.

Motion pictures are especially valuable in developing interests, changing attitudes, presenting systematic information and in arriving at generalizations. They help to bring the world and experts in a particular field into the classroom, which is ordinarily not possible. Films help to visualize information on entire processes such as manufacturing woollen cloth from the shearing of sheep, shipment of fleece, carding of wool to weaving of yarn into fabric. Films are useful also in introducing or summarizing discussions.

Films show continuity of events, cause and effect in a short period of time. There are films which are complete teaching units, such as 'Child Care and Development', 'Food for Health' and 'Fibres to Fabrics'. These films constitute full teaching units in Home Science and can be directly used as lessons. There are motivational films also which are capable of motivating pupils to desire to find out more about a topic under study.

Motion pictures are too expensive to purchase. A teacher must, therefore, depend on films on loan. A good many educational films, are now available for the teachers.

9. *Still Pictures, Radio, Recording* : Still pictures include slides, filmstrips and projectable pictures. These are less direct than the audio visual experiences previously discussed. Slides and filmstrips afford a teacher an opportunity to project a picture for an appropriate period of time and to discuss their contents in detail.

An opaque projector or epidiascope helps to project the images of opaque objects and pictures. Because of its feasibility to project both opaque and transparent objects, the epidiascope has come to replace the magic lantern which was being widely used in the past for the projection of enlarged pictures for class study. It may be used to project typewritten data, photographs, pictures from books, bulletins magazines, or newspapers. A teacher will never lack in visual materials for projection, if she has an epidiascope. The use of the projector is effective when operated in a well darkened room, placed about ten feet away from the screen.

A filmstrip is made up of a series of still pictures arranged in a logical order to tell a story, explain an idea or steps in a process. Filmstrips are less expensive compared to motion pictures. They can be turned backward or forward as needed. They may be in colour, with or without recorded scripts. Commentaries and discussion guides often accompany them.

Slides are independent units. Photographic slides are useful to illustrate any learning experience which can be photographed. They can be easily made by the teacher and pupils. A 35-millimetre camera is necessary for making the popular 2" x 2" size slides, black and white or in colour. Inexpensive hand-made slides can be made by drawing or printing or etching on glass, cellophane or on gelatin coated plain glass. Tables and graphs can be produced on transparencies. For example, lined figures drawn to scale can illustrate the relation of posture to the height of work surfaces in the home, or charts showing costs of materials may be produced as hand-made slides. Slides put to temporary uses can be washed off and re-used.

Radio may be used to acquaint the community with the work of the Home Science departments. Pupils should be helped to participate in local radio programmes. Such participation will give them confidence and motivation to improve speaking. Radio may be used during regular classes for direct teaching and imparting information on items like community problems, child care, sanitation, nutrition and health. A good discussion supplemented by the radio broadcast makes the experience worthwhile. Pupils can also listen to selected programmes and evaluate the information given. Some programmes which are useful in the study of Home Science are Grihalakshmi, Ghar Sansar ; Mahila Jagat, Family Planning, Balanced Diet, Doctor Se Poochia, Aap Ka Bachha and Pennulagam.

Radio has a quality of immediacy and intimacy that gives its listeners the feelings of watching events as they happen regardless of distance between the performer and the audience in terms of time and space.

Recordings have become popular in educational instruction. The tape recorder has a variety of uses. Some classroom activities such as spontaneous dramatization and discussions can be recorded and evaluated. Recorded talks by specialists and current radio broadcasts will be helpful for future use. Certain significant activities such as a talk given at a particular meeting or socio-drama, once recorded can be preserved and played when desired. Records have the advantages that the teacher can make a review and evaluation of the records before use. The discs can be played over and over again and stopped at any point for discussion.

10. *Visual symbols* : These include blackboard and chalk, flat maps, diagrams, posters, pictures, cartoons, flannelgraphs, flashcards, flipbooks and charts.

The *chalkboard* serves multiplicity of needs in teaching Home Science. It may be used for listing suggestions made during group learning, sketching illustrations, listing reading materials, noting assignments, listing new terms and concepts and for a host of similar activities. It is one of the few visual aids adaptable to the demonstration or a progressive solution of a problem. It lends itself to the use of drawings, charts, graphs and maps, all of which may be altered, changed or modified to suit the individual teaching requirements. Use of coloured chalks increases the effectiveness of the chalkboard.

Resourceful teachers will apply modern principles of display to their chalkboard presentations. For example, a Home Science teacher can use a 'template' of the diagrams, symbols, and designs which must be accurate and exact, or which need to be drawn repeatedly. A template of the human body will be very helpful in drawing accurately the different parts of the human body which can be frequently used while teaching the units on health, first-aid and home nursing. These materials can help pupils understand information and relationships more readily and thus improve learning.

Posters compel attention and motivate action. They tell their story at a glance. They help to drive home a single idea. They are effective both when used alone or when combined with other aids. They are often used in exhibits and to highlight demonstrations. Posters should be locally produced. They may be drawings, pictures, photographs, paper cut-outs, silhouettes, cartoons or samples of fabrics. Three dimensional quality in posters arrests attention and adds interest. The illustrations and captions should be large enough to be seen readily even from a distance to give a pleasing effect and to tell the story. The captions should be short. Posters can be used directly in classrooms to teach a process, to remind pupils of something they might forget, to advertise the events and to enrich the learning

environment. For example, a chart on the classification of fabrics will help the pupils to understand the different types of fabrics. A picture of a model home will help the pupils to understand readily household management and interior decoration. Posters can be used also indirectly to impart information, to arouse interest, urge action, and change attitudes as in the case of many advertising posters seen in the railway stations, stalls and other public places.

Pictures may be easily collected, classified and used for innumerable purposes along with other aids. They are useful for showing comparisons and contrasts in topics such as family planning, flower arrangement, nutrition, child care and immunization.

Flat pictures and photographs offer opportunities to communicate directly with the learners. Single pictures related to a subject make the topic clear and add interest to the discussion. Well-arranged pictures on a notice board, compel people to stop and look at them. Enlargements are useful for mass communication. Pictures taken from illustrated magazines and compiled in albums are useful references. In selecting pictures for teaching, consideration should be given to artistic quality, clarity, truthfulness, interest and suitability.

Cartoons are useful in illustrating human relations. They help to highlight the desired emphasis.

The Flannelgraph is an inexpensive aid. It can be used for demonstration purposes. Khadi and markin may be used instead of flannel. Flannelgraphs are useful to build a story or demonstrate a progression. They promote audience participation.

Flash cards or Flipbooks : A series of posters in small, easily handled size becomes a set of flashcards or a flipbook. Either of these is valuable to augment lectures and demonstrations.

Charts help to present abstract information in a graphic, easy to understand form. They can be used with other aids for clear thinking. They are useful to present information in condensed and summary forms. They also help to focus facts and figures to the essentials.

A Suspense Chart is an effective 'trick' to add interest to a demonstration or talk. It is a chart in several horizontal panels, each of which pertains to a particular point in the demonstration. Strips of plain paper are attached over each panel in such a way to be peeled off, one by one as the demonstrator stresses each important point.

Other graphic materials include diagram and graphs.

11. Verbal Symbols : Verbal symbols are the spoken or written words. They bear no physical resemblance to the object or ideas which they represent. The word 'iron' does not look like an iron or feel like an iron or press clothes like an iron. But

it is a term that has more or less common meaning for all of us. Although words are abstract symbols, they are indispensable for interpreting every other audio-visual material on the cone.

Use of Audio Visual Aids

Audio-visual aids should be selected on the basis of the criteria set up in relation to the purpose of instruction and the needs of pupils. There is no one single best audio-visual aid for all teaching. The best aid for a particular situation, depends, among other factors, on the nature of the lesson and what the pupils are attempting to learn. Ill-chosen or ill-adapted audio-visual materials can lead to distractions, wastefulness and frustrations. For effective application of the audio-visual aids, intelligent planning and evaluation must necessarily precede their use. First-hand preview experience is essential for the evaluation of the materials prior to selection and procurement. A teacher should preview all the audio-visual aids and understand thoroughly their merits and limitations before they are used. The class must also be prepared for the use of the audio-visual aids. The materials should be presented under the most favourable conditions and used at such times and in a manner that learning is facilitated. Everyone should be able to hear and see comfortably. Outside distractions should be eliminated.

Visual aids are not entirely self-explanatory, nor can they do all the teaching. The teacher must constantly guide the group to interpret what they see through the slides, charts, maps, filmstrips or films, and use the information obtained, towards the realization of their goals.

The audio-visual aids can also help the teacher to motivate the pupils to develop projects. For instance, a movie on 'Food for Health' can stimulate them to work on projects on good habits of eating and avoiding food wastage.

In using a variety of aids there is an advantage in that, some materials can be used to illustrate one experience better than another. For example, a working model of an electric circuit may be easier to examine and understand than the actual circuit or a picture of it. For teaching a lesson on 'role of vegetables in the diet', many types of aids can be used. The teacher can show a film to the class to focus attention on the nutritive values of different vegetables. After discussing the film, the teacher can show slides of tables of nutritive values of selected vegetables which are of particular interest. The teacher can illustrate on the chalkboard, some of the basic advantages of using those vegetables. The class can further be shown, attractively arranged plates of the selected vegetables, both in fresh and cooked forms. As a follow up activity, the teacher may require the class to prepare a report on the topic discussed.

The greater the different kinds of teaching aids used for a lesson the better will be the response. The most convincing presentation of visual aids is possible, when the teacher has made them herself or has studied them through the various

stages of lay-out, art work and writing. The teaching aid she uses must be part of herself.

Sources of Audio-Visual Materials

The Home Science room itself is a good source for actual materials to be used as instructional aids. An attractive and adequately equipped Home Science room will contain the best learning materials available for the units in home furnishings, decorations, furniture, utensils equipment, foods and in several other areas.

Specific audio-visual aids should be kept for teaching each area of home-making. The teacher and the pupils themselves can prepare a number of such aids. Activities involving the preparation of visual aids are good learning experiences. To supplement these materials, articles may be borrowed from the homes, shops and numerous other community resources — children's toys and furniture shops, textiles concerns and utensils bazaar. When teaching how to purchase articles such as linen, garments and equipment, trips to the shops will be helpful to demonstrate the standards for judging the quality of the article.

The teacher may obtain audio-visual materials from agencies such as the state and central government departments of Publicity and Information ; commercial agencies ; Red Cross, and International Organizations. From these agencies, charts, graphs, posters, pamphlets, exhibits and samples may be obtained at little or no cost. Filmstrips, lantern slides and motion pictures may be borrowed from the ministries of education, health, food, agriculture, community development and co-operation, and from the offices of the United States Information Services, the British Council, UNESCO, FAO Canadian Embassy, Federal Republic of West Germany and other embassies and organizations. They may also be purchased at concessional rates from some of these sources.

The National Institute of Audio-Visual Education, Central Health Education Bureau and Directorate of Extension (Agriculture), all situated in New Delhi, maintain a large collection of films and filmstrips which are given on loan to educational institution. A list of films and filmstrips along with other audio-visual materials and equipment useful for the Home Science area and their sources is given in chapter on Reference Materials. It is worthwhile keeping in touch with these institutions for getting the latest information on the subject. Since the demands on these agencies are ever on the increase, the teacher needs to anticipate her requirements atleast two months ahead of the schedule for their use and indent for them. She should never get fatigued about writing to these sources.

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CHAPTER 9

Evaluation

Concepts, Principles

and Techniques

EVALUATION is the process of collecting evidence of learning or its absence, weighing the evidence carefully and arriving at a judgement of the quantum and quality of learning that has taken place. Evaluation helps to discover the progress of the pupil and the teacher towards desired outcomes and to find out, 'How well has the goal been reached'? For the teacher, evaluation is the measurement of the efficacy of her teaching in terms of pupil development. For the pupils, it is the appraisal of the extent to which the individual and group objectives have been attained and also the effectiveness of their teachers. For administrators, evaluation helps to assess the success of the teachers, the school and its programme. Parents evaluate their children's progress in terms of changes in behaviour, appreciations and contributions as members of the family.

Evaluation is thus an integral part of teaching and learning. It needs to be focussed on the goals of the class, as well as the learning expected to result from the teaching through the use of relevant techniques and instructional resources. Teaching and evaluation should go hand in hand. For effective teaching-learning, evaluation must be a continuing process, planned at the beginning of each course and unit, and carried through its completion. Every day, in every period, the pupil's performance must be evaluated, in the light of which, the teacher can make decisions as to how to proceed further. Evaluation thus aids the teacher in judging how she is teaching, and also how she can modify her methods and content, if necessary. Pupils also come to know what progress they are making, that is, to what extent they are

achieving their goals and where and how improvements can be made. Therefore tests and all other evaluative devices must be planned along with the lessons at the beginning of the teaching unit, and applied day by day as teaching progresses. Without evaluation one cannot really teach, since it guides how to promote pupil development.

Concept and Principles

Evaluation is a learning experience in itself. For example, setting up the criteria for assessing the physical growth of pupils or developing a score card for judging a food product, is a learning experience, as well as a means of evaluating the progress achieved during a class period or a previous learning activity.

Education is a process concerned with pupil development as evidenced by changes in behaviour, which includes knowledge, skills and attitudes. Evaluation should then consist of an appraisal of

1. acquisition of knowledge,
2. ability to think and apply information,
3. skills,
4. attitudes, and
5. values in life.

Evaluation of teaching will be possible only by measuring the kind and amount of change manifested by the pupils in terms of the goals or objectives. For instance, if the goal is, 'to be of more help in the home', then ways should be devised to measure the help given at home in a manner to bring out the changes in behaviour. If 'improving standards of workmanship' is the goal, evidence should be sought for changes in workmanship.

Evaluation takes on more meaning when the pupil is given an opportunity for self-evaluation. Recent years are marked with a growing recognition of the importance of self-evaluation, especially during the adolescent period. As pupils become more independent, they would like to find out for themselves where they stand in relation to what is expected of them. Self-evaluation tends to give them personal satisfaction with their progress, and motivation for further achievement. Since pupils will have to make decisions based on self-assessment after they leave school, the earlier they learn to do so, the more efficient they will become in the task. The classroom seems to be the logical place to begin.

Techniques—Procedure for A Programme of Evaluation

Establishing an effective programme of evaluation envisages the consideration and implementation of the following sequences :

1. Deciding upon the objectives and clarifying them in terms of desirable outcomes of pupil growth.

2. Providing pupils with appropriate learning experiences.
3. Developing and using suitable evaluation tools for the collection of evidence of pupil development.
4. Using the results of the assessment.
5. Modifying, if necessary, the objectives and the procedures in the light of the evaluation.

Each of the above steps is related to the others, influencing them, and in turn, being influenced by them.

Setting up Objectives

Objectives of teaching are the desirable outcomes in terms of pupil development to be brought about by means of the pupil-teacher interactions. A number of considerations such as philosophy of life of the teacher, the outlook of the community, the trends of changes in the society, the social and economic needs of the families, the psychology of learning and the nature and content of the subject matter, should be kept in view while determining and clarifying the objectives. This step of determining the objectives is of prime importance, because the objectives direct all the activities involved in teaching and evaluation. All those connected with the education of children-parents, teachers and the examiners should have a clear concept of these objectives. Otherwise, the efforts of the different groups will be in different directions and instead of facilitating child growth, they will hamper it. The clearer the understanding of the objectives by the teacher, the greater will be the furtherance of education. While the essentials of life and the basic aspirations of families form the core of the objectives, the details of their content and the manner of their achievement will vary from society to society and from age to age. In a dynamic society, objectives can never be rigid. The trends in family, community, national and international living should indicate the changes required. Broadly stated, the objectives of teaching Home Science in our schools are :

- a) Acquire scientific knowledge about facts of life such as birth process, development of children and their physical, psychological, emotional and spiritual needs, health and hygiene (personal and community), nutrition, influence of housing textiles and clothing and other household components on the well being of the family.
- b) Enhance their satisfactions in life through critical thinking and applications of science, religion and art.
- c) Develop skills in performing household tasks such as preparing and serving meals, making and caring for clothes and managing the home.
- d) Express interests in exploring scientifically the existing household practices and traditions, collecting and utilizing literature pertaining to home and community living in ancient and modern India, taking up

hobbies such as collection of dolls, pictures of scientific and aesthetic value, visiting textiles museum, botanical gardens, housing schemes and super markets and carrying out Home Science projects.

- e) Imbibe desirable attitudes such as willingness to co-operate in the home and school, eagerness to contribute one's mites for worthy causes, sensitivity to recognise the needs of others, urge to feel proud of one's cultural heritage and readiness to place country above self.
- f) Appreciate values such as worthy home membership, sportsmanship, citizenship, patriotism and ethics in human relationships.

These general objectives need to be translated as specific class goals and expressed in such a way that the evidences of the behavioural changes expected of the pupils are measurable. In some goals, the expected behaviour is explicit as in the case of development of skills in personal grooming and cleanliness. On the other hand, a goal such as care of a child, would need further clarification as to the specific tasks such as feeding, clothing and playing with the child, before evaluation could be made. The teacher and pupil working together would think through the important tasks that the pupil might be expected to accomplish in order to achieve the goal.

Step 2 : Providing Appropriate Leading Experiences

In selecting and providing appropriate learning experiences, the teacher should derive guidance from the statement of objectives for directing pupil growth. For example, if one of the objectives is to be a gracious hostess, no amount of talk would enable the pupils to reach this goal, unless they are put into the realistic situation and encouraged to look after the guests. If 'To take care of the sick' is the goal, the pupil must be given charge of a patient and under appropriate guidance, care for the sick. The teacher should decide whether it is knowledge, skills, and/or attitudes that are to be learned and developed for attaining the goals.

A variety of experiences should thus be provided to achieve the objectives. This task will include the following :

- (a) Acquiring important factual information and knowledge of ways of presenting the information.
- (b) developing the necessary skills if the goal involves situations needing skills ; and
- (c) inculcating desirable attitudes and values.

Learning is believed to be more effective when pupils participate in a variety of experiences directed towards achieving the goals. Classroom experiences provide an opportunity to use equipment, resource materials, group and other techniques with which the school is equipped to offer. Home experiences which are designed to supplement classroom experiences are valuable because they can be carried out

in true-to-life situations. Community experiences are important because they acquaint the pupils with the resources of their community and help them to understand the responsibilities of families towards developing a better community. Often the same experiences can be tapped for accomplishing a number of objectives.

Step 3: Developing and Using Evaluation Tools

There are several devices and methods to evaluate the quality and extent of the new learnings. The types of tests available to the teachers are many : problem tests, short answer tests, essay forms, practical performance tests, anecdotal records of observed behaviour and cumulative records. However, it is regrettable that the tendency of teachers is to use mostly the essay type of tests. The effective teacher should take advantage of the numerous ways to evaluate the learning of pupils such as :

- (a) Checklists and questionnaires,
- (b) diaries,
- (c) observations,
- (d) anecdotal records,
- (e) cumulative records,
- (f) written tests and practical examinations, and
- (g) sociometry tests.

A good evaluation device should be reliable, accurate, valid, (measure what it is supposed to measure) and include items of varying degrees of difficulty. A variety of devices should be used for different purposes so that evaluation may be stimulating and meaningful.

Checklists and Questionnaires : These include series of statements or questions indicating facts, opinions or interests to which the pupil reacts giving significant information about himself.

Diaries Diaries are records of observations or personal experiences maintained by pupils. They are useful to the teacher for noting evidences of problems and changes in behaviour towards such problems over a period of time. They can indicate appreciations, interest or attitudes in relation to personal, social and family relationships.

Observations : Observations of the pupil's performance and behaviour at various learning experiences, such as role-playing, exhibition, group work, and socio-drama, in school, home and community may give evidence of emotional maturity and ability to apply information and serve as bases for determining further learning.

Anecdotal Records : These are descriptions of incidents which seem significant to the teacher, regarding the pupil's behaviour. Evidence of self-direction, tolerance, consideration for others, independence in thought and action and other qualities of personalities may be obtained in this way. But this is not

usually possible, when the teacher has many pupils in the class and her time-table is heavy. Under such circumstances, pupil's diaries may be useful.

Cumulative Records : Cumulative records are maintained by the teacher. This is the accumulation of all the different types of information that the teacher is able to secure about a pupil during the year. They include results of tests, anecdotal records, personal data, questionnaires filled by pupils, reports on home projects and such other relevant material. They should be kept strictly confidential. They must be used with judgement considering the fact that pupils change in maturity.

Sociometry Tests : These tests can give an insight into the social acceptance of the pupils and the group structure which can help the teacher choose the leaders, from groups or take measures to stop undesirable trends in group behaviour. Sociograms are the visual representation of the group relationships. They are useful. So for measuring pupil's personal and social adjustments. Figure 4 shows how the

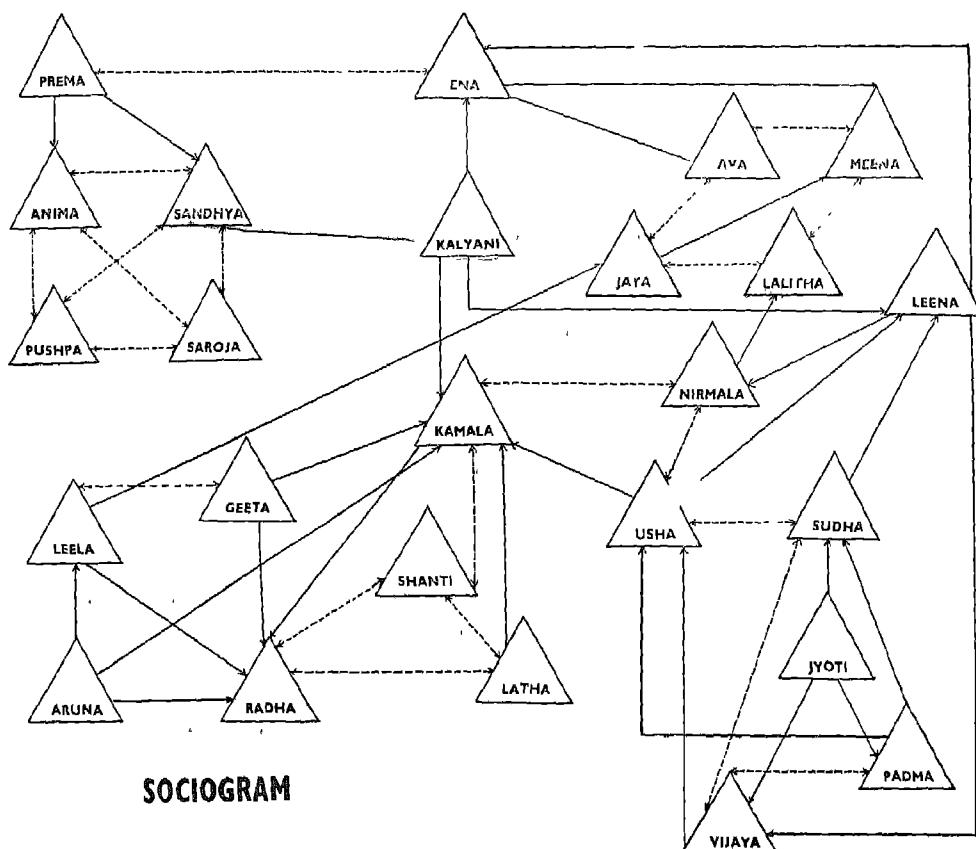


Figure 4

pupils in class are attracted towards each other, leading to popularity of some and isolation of a few.

Figure 4 shows how well liked are some girls like Kamala and Radha and how reserved and unsociable Aruna is. Sudha is also not popular.

Written Tests and Practical Examination : Written tests and practical examinations may be of objective or subjective types. They are used primarily to determine the facts and skills which pupils have learned or the principles they can apply. The pupil's ability to think, reason, plan to solve problems and to manipulate skills is tested in this way.

Problem Tests : In the problem type questions, the problem is stated with four or five possible solutions listed. The pupils are asked to mark the solution which they consider most suitable, and also state the reasons for their choice. By this procedure, their knowledge of facts and principles, and ability for reasoning can be measured in a short time. This type of test is easy to grade but difficult to prepare. By the use of this principle even the essay type test may be made objective.

The steps in the preparation of problem tests are :

1. Select the important facts and principles of generalizations.
2. Set up problems to which the principles and facts listed apply. Describe the situation in order to ask, what should be done ? or what will happen ?
3. State possible answers.
4. Make a list of reasons for the answers to include some adequate, some irrelevant, some false and some partly true ones. Make sure that the good reasons are based on what has been taught.
5. Arrange the test with the problem first, the solutions next and reasons last, the latter mixed up with good and poor ones.
6. Leave a blank space for each conclusion and reason.

An example of this type of problem test is given below :

Directions : Read each problem carefully. Then circle the item which indicates the solution you think is best for the problem. Also circle the reason which explains your choice of this solution
 Shakuntla's mother left her five-year old brother Lakshman with her (Shakuntla) and went to her relative's home. That night Lakshman being very home sick for his mother, was continually crying refusing to eat : What should Shakuntla have done ?

- (a) Shakuntla should inform her mother at once.
- (b) Shakuntla should beat Lakshman.

- (c) Shakuntla should give false hope to Lakshman that mother would return in another hour,
- (d) Shakuntla should divert Lakshman's thoughts through play or stories and make him take the meal (Correct answer)
- (e) Shakuntla should explain to Lakshman that mother had to go and would try to come as early as possible.
- (f) Shakuntla should take Lakshman to a cinema.

Reasons :

- (i) Shakuntla is young and cannot take the responsibility.
- (ii) Shakuntla is afraid that something would happen to Lakshman.
- (iii) It is alright for Shakuntla to tell a falsehood to make Lakshman forget his mother for the time being.
- (iv) Shakuntla should divert Lakshman's thoughts and help him eat food. (Correct answer)
- (v) Shakuntla must inform her mother since mother would be anxious.
- (vi) If Lakshman's immediate thoughts are diverted through the cinema, he will get adjusted to the situation.

Practical Problem Tests

When the test is of the practical type, each pupil makes a plan and carries it out. This type of test involving activity can help to evaluate the managerial and manipulative abilities and judgement of the pupils. It should be arranged in such a way that it is within the physical facilities of the laboratory, equipment and space and the pupil's intellect, training and ability, and yet challenging.

Examples

First Aid

1. Lakshmi has hurt her finger while cutting brinjal. Select the necessary articles from the first aid kit and demonstrate how you will stop her bleeding,
2. Mary has just fainted. How will you treat her ?

The score card for grading the performances of each pupil can be devised co-operatively by the class before starting the assignment, as suggested below :

	<i>Marks</i>
Selection of right articles	... 20
Treatment given without hesitation	... 20
Application of correct methods (Specify methods also.)	... 30
Paying attention to psychological needs.	... 20
Completion	... 10
	<hr/>
	100

The class can be divided into small groups to take this test.

Foods : From the supply of foods on the table, let groups of four pupils prepare a lunch for three high school pupils, consume the meal and clean the place.

The score card can be as follows :

	<i>Marks</i>
Menu planning	15
Preparation	25
Orderliness of work	15
Arranging the place for serving	15
Serving	10
Cleaning up	10
Appropriateness and taste of items prepared	10
	<hr/>
	100
	<hr/>

Short Answer Information Tests

Information tests are used to judge knowledge. Acquisition of knowledge is one of the tools in achieving goals. For example, one must be informed of the working of a household appliance such as a sewing machine or smokeless *chula* and their care, to be able to use them well.

Objective or short answer information tests are of different types : true-false, multiple response, completion and matching tests.

True-false tests lead to guess work and therefore are not desirable.

Multiple-response tests may give several possible answers from which the pupils select one or more correct ones. When the pupils are asked to choose the best answer among several all of which are nearly true, this type of test calls for judgement, as well as a thorough knowledge of facts. The *completion test* provides blanks, to be filled to complete the statements given. This is more difficult than recognizing a correct answer, since the pupil must recall or give the correct word or phrase to fill up the blank. If a list of possible words or phrases for each blank accompanies the test, the objectivity will be greater. The *matching test* is a recognition test in which the pupils must associate ideas with certain statements or appropriate counterparts.

Objective tests have the advantages of being administered quickly and testing a large quantity of information. They save writing on the part of pupils and are easily scored. But they require a great deal of time, thought and effort on the part of the teacher for their preparation, and sometimes tend to separate knowledge from its use.

The following are some points to be considered while preparing these tests :

1. Include only important items which pupils should know as a result of their study.
2. Make statements clear, definite and not ambiguous.
3. Avoid including clues to the answer in the statements used.
4. Use terms which are familiar to the pupils.
5. Use items which are independent of each other so that one does not supply a clue for answering another.
6. ~~Make appropriate and clear directions for working.~~
7. ~~Arrange space for answers conveniently.~~
8. Include only that number of items which a majority of the pupils can finish in the time allowed.
9. Maintain silence. Once the pupils begin working, distractions such as whispering or moving about the room should be avoided. Some pupils are seriously disturbed by noise.

Step 4 : Using the Results of Evaluation

If the energy and effort spent in obtaining the pupils' responses to the different tests are to be utilized fully, appropriate ways of summarizing and interpreting the results should be developed while planning the programme itself. The results consolidated should indicate clearly the achievement or otherwise of the objectives set, in order to offer guidance to parents, teachers, pupils and administrators for further improvements. The results of evaluation can be used for many purposes as stated below :

(a) Modifying the objectives :

Some objectives might not have been challenging, while others might have been over-ambitious. These can be examined in the light of the evaluation and modified if required.

(b) Modifying the teaching-learning procedures :

The results of evaluation will bring forth the weaknesses of teaching methods, thus giving opportunity to change them to be more appropriate and effective.

(c) Improving the syllabus :

The course can also be examined in the light of the finding of the evaluation and reoriented towards more constructive ends.

(d) Diagnosing the strengths and weaknesses of the pupils for giving them guidance towards improvement.

(e) Rating the pupils.

(f) Counselling the pupils :

Based on the evaluation, pupils can be given guidance in respect of their aptitudes for higher studies or careers.

Some suggestions regarding the evaluation techniques and devices which can be applied for the different units and types of learning experiences are given in Table I.

Table I
Suggested Evaluation Techniques and Devices

<i>Unit</i>	<i>Desired Outcome</i>	<i>Evaluation Techniques Suggested</i>
1. Enjoying young children.	Some skills in providing adequate play experiences for small children.	<ul style="list-style-type: none"> (a) Have the class work out a score card for judging toys with reference to their suitability for different age levels and educational values (b) Let pupils use the score card to judge toys in their homes and shops. (c) Let pupils select some songs to be taught to children of different age groups. (d) Let pupils have opportunities to teach one or two songs, selected for a group of children. Evaluate their appropriateness. (e) Grade the stories written by pupils for children. (f) Comment on pupils' reports of 1/2—1 hour periods they had spent with children.
2. Making one's own room attractive.	The recognition of the need for taking responsibility for keeping one's room orderly and attractive.	<ul style="list-style-type: none"> (a) Secure reports from parents as to whether pupils have assumed more responsibility than before for the care of their personal belongings in their homes. (b) Observe and record pupils' care of their belongings while in school (c) Assign responsibilities to groups of pupils to maintain their classrooms and laboratory clean and orderly. Evaluate how the responsibilities are carried out
3. Clothing for the family.	A realisation of the responsibilities involved in buying clothing.	<ul style="list-style-type: none"> Have the pupils assess the merits and demerits of different types of clothes. (b) Use a questionnaire to assess the types of clothes worn by pupils before and after studying Home Science in high school. (c) Have pupils grade their clothing purchases.

4 Three meals in a day. The ability to choose for oneself and for the family meals which are satisfactory from the standpoint of nutrition and cost

5 Home care of the sick The ability to take charge of a sick person, and to give direction in emergency.

(d) Administer a matching type test to find pupils' knowledge about colour combinations in choosing clothes.

(a) Give a written test on principles of nutrition

(b) Display on the table a few foods from the basic groups and let pupils select those, which will constitute an adequate diet for a day for a school going child, giving reasons for the choices.

(c) Conduct a practical test on preparing adequate meals

(d) Have pupils study their records of weight and correlate age with their health status.

(a) Use a checklist to determine both desirable and undesirable ways of acting in emergencies

(b) Observe the pupils prepare a room and bed for the sick.

(c) Evolve a score card to assess the preparation and presentation of diet for the sick

(d) Observe and rate the pupils at mock-situations of handling sick persons

Home Science is unique in that it draws upon all the other subjects in the curriculum and applies them to the personal and family life. It is based on certain traditions and qualities which are intangible and undesirable such as chastity, beauty and love, supported by scientific knowledge and procedures. It integrates the offerings of all the disciplines with a primary purpose—development of the pupil rather than production of 'examination results'. Therefore, whatever device seems best for the situation must be used to appraise pupils' development.

Evaluation is thus integral part of any educational programme. It should be continuous, systematic, carefully executed and the results put to the best use. It is a critic and a guide—a critic of the past work and a guide for future planning.

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CHAPTER 10

Organization of the Syllabus into Units for the Year*

HOME MAKING is an integrated field with different areas contributing towards its success and happiness. This recognition has necessitated the unit-planning approach in organizing the syllabus for teaching. Organization of the syllabus into units promote clarity of thinking, coherence in subject matter and definiteness of goals for both the teacher and the pupils. In such unit organization of the syllabus, many factors should be considered by the Home Science teacher from the stand points of the school and the pupils. On the one hand, she should examine the content, the periods allotted in the time-table, the resources and facilities available, the requirements prescribed by the State Examining Boards and the other school subjects with which Home Science can be correlated effectively. On the other hand, she should evaluate the extent of interest and previous knowledge of the pupil and the community resources.

Usually, most teachers take up the various subjects of Home Science separately, following the sequence given in the prescribed syllabus. In such a procedure, pupils cannot see home-making as an entity. Therefore, it is desirable that the various aspects of Home Science are organized into integrated units, spread over the different years of study in the high school. The units in turn, need to be taught inter-related to each other, as well as the areas of Home Science. For instance, 'Food' cannot be taught without discussing 'Money management' or 'Physiology'. 'Time management' is important in 'Meal preparation'; Hygiene,

* The term 'Syllabus' as used here is synonymous with 'course outline'.

clothing and household management are involved in "Care of clothing"; 'The Psychological Factors in Eating' cannot be isolated from 'Nutrition'; and "The Development Needs of Children" have to be considered while 'feeding children.' Food, clothing and housing which are the basic necessities of life are dependent on the finance available. To derive the maximum joy of life, human relationships are essential. Health is impossible without all these factors.

Definition of Unit

A unit is composed of a group of closely related activities and experiences organized around a special problem, central theme, or project. The themes 'Food for the Family', 'Health in the Home' and "Our Clothes" are some examples for units. The unit generally embraces more than one subject matter area. While studying a unit, pupils learn several subjects using many resources. The teaching of the unit calls for utilization of several activities and skills such as reading, speaking, stitching, cooking painting as well as methods such as problem solving, laboratory, field trip, films, library discussion and dramatization. For completion, a unit may require any length of time ranging from a few hours to even a whole year or years, depending upon its nature and the environment. The time limits set at the beginning of the unit may be exceeded if conditions are not favourable. In some cases, units may not be comprehensive, but cover a given subject matter field over a small period of time. For instance, 'Foods for Growth,' 'Children's Toys' and 'Home Decoration' are units which could be completed within a short period. Whether large or small, units being complete in themselves, facilitate appraisal of progress and planning for future improvements. Conclusion of one unit and commencement of another provide a sense of achievement and motivation for new effort.

Organizing the Syllabus into Units

The teacher should organize the prescribed syllabus as integrated units based on the needs, interests and past experiences of pupils in each class. The planning of the sequence of activities should be in harmony with available materials, seasonal changes, and the aspirations of the community. For example, the unit on 'Food Preservation' should be planned during the season when some fruits such as mangoes and guavas, and vegetables such as beans and peas are abundant. The unit on 'Special Menus' should be taken during festival times. The units on 'Making New Garments' and 'Community Events' could coincide with occasions like Deepavali, Christmas and New Year's Day. The units should be distributed among the number of terms, months, weeks and days in the year or years.

Teaching according to unit approach involves three steps: (1) Planning the sequence of units for the entire programme in Home Science in the school; (2) Preparing the outline for each unit; and (3) Spelling out the units and their activities in terms of teaching for the weeks, and for the days.

1. *Planning the Sequence of Units* : The units chosen for the year or years need to be arranged from the simple to the complex, forming a sequence in a manner challenging to the abilities and stages of development of the pupils. The sequence of units should be built around the attitudes and concepts to be developed, the basic knowledge and skills to be imparted and the exploratory experiences necessary for helping the pupils to choose their future. Table II shows the syllabus so arranged in terms of larger units, comprising the major areas of Home Science.

Table II
Units in Home Science

Major	UNITS		
	Simple	Intermediate	Complex
Foods Nutrition and Cookery	Your daily food, personal appearance and health	Family meals	Food preservation
Home Management	You and your money	You and your house	You and your time
Textiles, Clothing and Laundry	Clothing and personal appearance	Clothing construction	Care of clothing
Home Nursing, Health and First Aid	Protection against diseases	Care of the sick	Being prepared for emergencies
Child Development and Mother craft	Being with children	Understanding children	Preparation for the arrival of children
Human Relationships	You and your friends	You and your family	You and your community

2. *Preparing the Outline for the Units* : In drawing out the outline for a unit, the teacher must continually strive for co-operative planning with her pupils to set the goals. The goals must be clear and the plans flexible. They must grow as pupils and teacher think together and all the resources and materials needed must be envisaged, listed and planned for diligently. The main steps in preparing the outline for each unit are :

- (a) Setting the goals for the unit by pupils and the teacher in specific terms, against which progress can be measured.
- (b) Selecting and organizing the activities which will help to accomplish the goals.
- (c) Planning for the resources needed.
- (d) Planning for the guidance required for carrying out the selected activities.

- (e) Planning for evaluating the progress.
- (f) Planning for further development.

Planning the units should result in a written outline to be used as the teacher's guide. There are many patterns for the outline. The following is a suggested one :—

- Title of the unit :
- Estimated length of time :
- Objectives :

General :

Specific methods to be used :—

- (a) To initiate activities, in an interesting manner ; and
- (b) To teach the unit at the different stages.

Correlation : Sequences of other activities, indicating possibilities of correlating experiences.

Evaluation techniques to be used :

References and resources for follow-up :.....

3. Spelling out the Units for Teaching by Weeks and Days

Planning for the Week : Every component of the unit in all its ramifications needs to be planned in terms of both content and time. For this purpose, the teacher should plan her lessons in advance. Spelling them out for definite periods of time, which for convenience is usually a week. Only then, the work can proceed smoothly without waste of time. This planning should indicate the days and the time allotted during the week for completing a certain piece of work, laboratory experience, field trip, discussion and others. The plan should also give in detail the facilities and materials required for the activities suggested. Given below is an illustration of week-wise allotment of experience :

Main Unit on Personal Appearance

A week's plan on the sub-unit 'Personal Grooming'.

- Monday : Demonstrate washing hair by two pupils
Compare the efficiency of various soaps and soapnuts.
Show effects of hard water on washing hair
- Tuesday : Combing hair, display of different hair oils and different types of combs. Pupils bring them and judge them
- Wednesday : Different hair styles and selection of the most appropriate ones for class, laboratory and entertaining.
- Thursday : Keeping hands and nails clean. Testing soaps for washing hands. Use of hand towels Keeping nails cut and protected.
- Friday : Discuss care of skin. Compare different talcum powders.
- Saturday : Discuss clothes and appearance Wash clothes. Clean feet and chappals.

Planning for the Day : Having outlined the unit in terms of weeks, it is necessary to plan day by day and period by period. Lesson plans are the written outcomes of planning day by day.

Planning the lesson : In planning lessons, the teacher should think through the lesson. She must visualize the class, the material surroundings, and the equipment. The objective of the lesson, the experience, the use of equipment, materials and time must be thought out. Planning must lead to efficient performance by the pupils for the realizations of their goals.

A lesson by tradition and practice connotes the portion to be covered during a class period, which is usually 40-50 minutes. Planning lesson refers to the way the teacher determines what will be done during that particular period. The type of lesson planning done by a teacher depends upon her familiarity with the topic, class, methods, resources and her experiences.

There are many forms of lesson plans. All of them include atleast three basic components which guide educational planning.

1. Selecting objectives.
2. Determining the content and the methods.
3. Selecting evaluation techniques.

Additional sections are included so that the teacher will not forget important aspects of the lesson such as : materials to be used and assignment to be given. The words 'purpose', 'goal', 'aims' and 'outcomes' are synonymous with 'objectives' and the word 'procedures' may be used instead of 'methods'.

The following is an example of lesson planning for a period of instruction.

Lesson : To introduce the unit on 'Green leafy vegetables'.

Objectives : As a result of this lesson, the pupils will :

1. Recognize the different kinds of leafy vegetables available in the locality ;
2. develop an appreciation for the nutritive value of green leafy vegetables ; and
3. devise ways of using green leafy vegetables in their daily diet.

Materials required : Samples of green leafy vegetables, chart on balanced diet, and pictures of well nourished children.

Activities

Show a healthy child or the picture of one. Elicit its characteristics.

Study the diet that is being consumed by the child as shown in the chart.

Find out how much of green leaves the child consumes per day.

Pass around the samples of green leafy vegetables.

Discuss the role of green leafy vegetables in health and nutrition.

Discuss cooking green leafy vegetables. Compare the cost involved in buying green leafy vegetables and growing green leafy vegetables in home gardens.

Let pupils ask questions.

Evaluation : Give a quiz on the content taught.

Assignment :

1. Through parents and others gather information about the green leafy vegetables available in the neighbourhood.
2. Bring one recipe using green leafy vegetables from your home to the class.

The planning for laboratory lessons will include :

1. Relation of the lesson to the unit or project
2. Objectives
3. Planning period :
 - Orderly procedure
 - Methods
 - Use of materials
 - Dangers to be guarded against
 - Records to be kept
4. Activity period :
 - Management of equipment and materials
 - Difficulties arising
 - Individual pupils' need for help
5. Evaluation period :
 - Time for evaluation, method and suggestions for future should be included in evaluation period.

The planning for *Demonstration* should be based on the general principles of demonstration—who should give it, when, materials needed, thinking through subject matter and management of the group, etc. It should include ;

1. Objectives
2. Steps involved
3. Points to be emphasized
4. Generalizations to be drawn
5. List of materials to be used
6. Evaluation

The columns given below will be useful in listing the requirements ;

Time needed	To do	To say	Equipment	To use Supplies

Planning for a *field trip* involves making arrangements for obtaining the concurrence of the school administrators, parents, and the class teacher ; and undertaking the trip for evaluation. Given below are the steps for organizing a field trip.

1. Planning for the trip :

Purpose

Pre-visit

Arrangements to be made

Clarification to pupils of the purpose and arrangements for the trip

2. Guiding the trip :

Guide the thinking of the pupils

Manage the group

3. Evaluating the trip :

Evaluate : (i) learnings and appreciations and
(ii) problems and generalizations.

Plans of no two teachers are ever alike. Every plan is made by the individual teacher for a specific situation, and for a particular group of pupils. Written plans are helpful to enable the teacher to clarify her thinking and methods, and remember details.

Suggested Units and Activities in Teaching Home Science

A. Food, Nutrition and Cookery

Pupils in high schools are usually interested in cooking and are eager to learn new methods of doing it. Sharing in cooking at home stimulates their desire to collect new recipes and food combinations. Cookery classes are welcome activities, being a pleasant change from normal classroom teaching. In the foods laboratory, pupils have opportunities to make new food preparations with their own hands, to learn new techniques in enjoyable ways and to taste the preparations made. They can help in preparing foods for different types of people ; adults, babies, sick, convalescents and those in special conditions. They can share in the

purchase of food and in food preservation. They also get chance for working together as a group. Understandings, attitudes and skills are the goals in this area, and not mere cooking or the end product.

Starting with simple food preparation, meals are planned, prepared and served in order to gain experience in carrying out the several activities at one time, as in the home. Standards are set for methods and products. Systematic planning, orderly methods of work, establishment of work habits and evaluation of the process and the product are important outcomes.

Techniques cannot be acquired by doing a task just once. The procedures must be repeated with a few types of foods in a variety of ways and practised several times in the pupils' homes. Pupils should be helped to feel confident in their abilities to go ahead independently with the preparation of meals. Nutritional values and requirements should be learnt in terms of everyday food preparations. Hygiene of food, beauty in serving food and cleanliness must be emphasized. All formalities in serving food should be related to the standards of living of the pupils' families with respect to their practices. The economic conditions of the families in the various sections of the community from which pupils come, should be the basis for planning meals.

Teachers need to keep in view the important problems relating to food in their community and state. Information on income, food supplies available and deficiencies in existing diets should be obtained and presented to the pupils. Knowledge of conditions in homes regarding food practices, how they buy their food, how meals are planned, how much food preservation is being done, occupations and activities of the members of the family, their interests, social practices and food habits is essential. The teacher should become familiar with the foods available in the community and their nutritive values. In order to make the units fit in realistically with the needs of pupils, experiences should be based on a nutritional standard that is obtainable by the family, in terms of the amount of money the family can spend on food, and what can be produced at home.

Cooking is an art and a creative outlet for self-expression. However, the teaching of foods and nutrition goes beyond the cultivation of just one isolated skill or art such as cooking, and give an understanding of basic nutrition as it applies to the health of the members of the family and the working efficiency of the nation. Pupils learn to plan, prepare and serve whole meals with regard to the day's entire diet, and budget for food including buying, house-keeping and sharing of responsibilities.

As far as possible, activities in the foods class must be organized around preparation of meals, rather than a series of single items of food preparations. Opportunities must be provided for individual practice in management of time, energy and money. Safety, manners, standards and co-operative work with others should be stressed. Experiences in food preparation and preservation must be

according to accepted nutritional principles and recommended allowances, seasons, needs, customary diets and demands of the community.

Grouping of pupils for laboratory work should be such that they represent the average size of the families in the community.

Some suggestions for the units and activities in foods, nutrition and cookery are given below :

Unit 1 : Your Daily Food

Concepts : Food is essential for growth, activity and health. Requirements of an adequate diet—Adequate diets can be planned at different costs, using foods from different groups.

Cleanliness in food is essential for health

Related Understandings and Skills	Suggested Learning Activities
<i>Gain an understanding of the functions of food.</i>	Discuss why we eat food
<i>Know the foods available in the locality</i>	Compare the characteristics of well nourished and malnourished children through pictures and films Initiate experiments with rats on different diets Visit local markets, school gardens and kitchen gardens to know the local foods
<i>Gain an understanding of food groups needed for adequate diets.</i>	Display the Basic Groups of Foods.
<i>Develop appreciation for ways of improving the diets without increasing cost.</i>	Classify the foods observed in the local market into the basic groups. Prepare charts on Basic Food Groups. Describe what contribution each group makes in fulfilling the functions of food. Develop a guide (score card) for selecting the right foods in the right quantities. Maintain a record of your food intake for four or seven days Check your food intake for adequacy. Choose foods from several groups for a day's meal for you Start school gardens to produce your own vegetables and fruits. Demonstrate methods of cooking to conserve food values. Discuss the relative nutritional merits of foodstuffs with respect to their cost Demonstrate methods which will enhance the food values such as sprouting grams, choosing fresh vegetables and eating vegetables.

Acquire skills in planning, preparing and presenting adequate diets.

Discuss the importance of cleanliness in handling and serving foods (a) personal cleanliness and (b) cleanliness of work space, equipment and storage, protection from insects.

Plan the menu for a day for you

Prepare one meal—either lunch or dinner.

Present the cooked meal to the class. Discuss its adequacy in terms of nutrition, attractiveness and taste.

Consume and evaluate the meal

Unit 2 Family Meals

Concepts : Food requirements for the family.

Planning and preparing meals to suit the members, income and available foods

Methods for augmenting food supply through kitchen gardens, poultry etc.

Related Understandings and Skills

Know the food requirements for different age groups and activities.

Suggested Learning Activities

Describe your family, its members, their sex, age, work and special conditions such as pregnancy, lactation and old age.

Analyse the data for the group to see how the members fall into different age groups, types of work and special conditions

Calculate the nutrient requirements for the individuals in the family with consideration to their sex, age, work and special conditions.

With your diet as the reference, plan what modifications are to be made to meet the food requirements of each individual in your family.

Plan the daily menu for your family, based on their nutritional needs.

Obtain the reactions of your mother (and others if possible) to your sample menus. Be sure to record reasons—such as cost, taste, non-availability.

Modify the menus on the basis of the reactions of your family members, without sacrificing nutritional principles.

Prepare the day's meals as planned

Serve the meals to the class and evaluate.

Acquire skills in planning and preparing for the family.

Find out from your mother how much money she spends in a month for food and on what items.

Develop an appreciation for ways of finding resources to meet the food requirements.

Analyse the information to find out if expenditure on any item can be reduced or avoided.

Visit different types of poultry farms. Examine, cost and income in order to understand that poultry keeping may be one of the resources.

Visit model kitchen gardens to study the kinds of vegetables and fruits grown.

Keep a record for expenditure, and income through sales of produce, from the school garden started.

Demonstrate and practise recipes for introduction of food substitute such as M.P.F., ragi for rice, horse gram for redgram.

Unit 3 ; Food Preservation and Storage

Concepts : Preserving foods helps families to get maximum benefit in cost and nutritive value

Avoiding wastage of surplus perishable food is a national need

Related Understandings and Skills

Gain knowledge of the ways of preserving foods

Selected Learning Activities

Discuss the kinds of foods which are available in bulk at one time during certain seasons. Find out what is ordinarily done with those foods by the families.

Explain methods of preservation for different kinds of foods and the principles involved

Demonstrate different methods of preservation of selected foods.

Let groups try out some of the methods.

Let pupils take home the recipes and help their mothers to do the preservation.

Discuss the results of home food preservation in the class.

Visit canning factories and places where pickling and squashes are done on a large scale.

Discuss the precautions to be followed in using preserved foods especially the bottled and canned ones

Gain knowledge of ways of storing different food stuffs

Visit homes and hostels to see how different food-stuffs are stored.

Examine the keeping quality of the foodstuffs stored.

Discuss the merits and demerits of the different storing methods, with reasons.

Show the films on the hazards we have to guard against in storing different foodstuffs.

Demonstrate some of the improved techniques for storing foods, e.g. janta refrigerator, polythene bags with holes.

Experiment with different methods of storage to determine keeping qualities.

B Home Management

The area of Home Management stresses those qualities which make a home comfortable, livable and attractive. It is important for pupils to realise that a home is to be judged by the way it meets the needs of the members of the family rather than by its size, appearance, cost and type. Therefore, experiences such as improvement of the home and its surroundings at little or no cost, learning ways to make home attractive without being unhappy about the situations which cannot be changed, participating in household tasks, developing abilities to manage time, money and other resources and inculcation of happy attitudes to share the facilities in the homes are emphasized.

Many pupils may have some responsibility in helping with management activities in the home. Some may be looking forward to marriage and their future homes. Interest in establishing and maintaining reasonable standards for making homes comfortable and convenient should be stimulated. Pupils must be helped to appreciate that even under crowded conditions, it may be possible to provide more space for study, storage and entertainment, through suitable alterations and adjustments. They should be guided to express their individualities in their performance of assigned tasks. The activities chosen should be closely related to the needs and interests of the high school pupils. Helping pupils to face reality in terms of home conditions, will prepare them better to meet the present and future problems.

Management involves proper use of time, money and energy as well as, improved methods in executing household jobs. Through the study of this area, pupils will be assisted with their management problems. They may be guided through selected learning experience, to be more intelligent in determining values, and efficient in planning, executing and evaluating household activities,

Teaching management is a means to the end, 'Satisfactory home living'. It cuts across all other areas in Home Science. Therefore it cannot be taught as a separate subject but needs to be an integral part of the entire programme. Home management units and experiences must be planned carefully and integrated with all aspects of Home Science, namely, nutrition, health, child-care, clothing, human relationships and other school subjects.

There are many interesting approaches to teaching Home Management. Visits to well and poorly arranged homes and shops, use of pictures, cartoons and movies, exhibitions of art objects, artistic arrangements in the home and school, examination of housing plans and furnishings, 'Before' and 'After' studies, hobbies, poems, dramas and skits can all be used to stimulate pupils' interest in this area. Pupils can make their budgets, do shopping and keep records to make learning more interesting. They can collect proverbs pertaining to management such as, 'A stitch in time saves nine, and 'haste makes waste'.

Some suggestions for activities in the units in Home Management are given below :

Unit—1 : You and Your Money

Concepts : Meaning and value of money.

Need to plan money expenditure.

Responsibilities for handling money

Related Understandings and Skills

Develop appreciation for the importance of planning and wise use of money.

Gain knowledge of ways for saving

Suggested Learning Activities

Make a list of items on which you spend money in a month—busfare, stationeries, snacks and gifts

Summarise and discuss the information gathered.

Discuss the desires of the group for handling money—e.g. whether the allowance for the month should be given at one time or in instalments

Discuss how the pupils and their parents spend money.

Explain the steps involved in making a spending plan

Draw up a plan for spending pocket money.

Record the day-to-day expenditure of the pocket money.

Check the plan for modifications to be made.

Record the day-to-day expenditure in the Home Science department

Discuss why and how children save money.

Explain methods of saving.

Visit institutions such as banks and post offices to learn how to use the services available.

Open post office or bank accounts.

Make plans to save some money regularly

Evaluate the satisfactions accruing from saving

Unit 2 : You and Your Time

Concepts : Values of time,

Measures for proper management of time

Related Understandings and Skills

Develop appreciation for wise management of time.

Suggested Learning Activities

Discuss time as a resource and its values.

Record the activities carried out during three consecutive days and the time taken for each.

Acquire skills in wise use of time

- Discuss the data collected
- Observe how your mothers spend their time.
- Discuss and evaluate mothers' arrangement of time at home
- Discuss the principles involved in the management of time,
- List the household activities and categories as 'most important' 'desirable but not imperative' and 'least necessary'
- Work out a desirable time plan for a week and evaluate the plan.
- Develop a plan for rearranging the study area in your home as a means for gaining time,
- Carry out the plan in action,
- Evaluate the work in terms of time spent, comfort and appearance
- Project filmstrips on topics pertaining to time management, such as. 'Finding more minutes.'

Unit—3 : You and Your House

Concepts Colour harmony and its application in home decoration

Arrangement of one house and its possessions for comfort and beauty

Cleanliness is next to Godliness.

Related Understandings and Skills

Acquire the skills in using colours wisely in the home

Develop skills in the use of flowers for decorations.

Acquire the skills in hanging pictures attractively.

Develop skills in arranging furniture in the different areas of the house for easy circulation and convenience

Suggested Learning Activities

Paint the prang colour wheel.

Discuss the effects of warm and cool colours

Plan and carry out a simple colour scheme for the sitting room in the home or school.

Collect fresh flowers, leaves and accessories.

Arrange the flowers to suit the various areas, in different types of containers

Evaluate the various arrangements.

Make an album with pictures of flower arrangements.

Select pictures of different sizes. Frame the pictures suitably and have them hung in different ways and places

Discuss the principles of furniture arrangement.

Draw to scale the plan of the different areas in the house. Try out the arrangement of furniture in the different areas by using 'cut-outs' on a uniform scale.

Gain knowledge on the importance of storage to simplify tasks

Discuss the principles of storage.

Develop designs of storage areas for convenience and ease in handling of :

Clothing
Books
Kitchen utensils and provisions

Understand the importance of convenient work areas to save time and energy

Find out comfortable working heights for your use of the—

Writing table
Chair
Cooking area
Washing area

Develop appreciation for clean surroundings.

Discuss the importance of daily, weekly and occasional cleaning.

Develop skills in cleaning :

Clean and polish the surfaces of :

Wood
Mirrors
Glasses
Metals

C. Textiles and Clothing

Adolescent boys and girls are deeply conscious of their appearance and are concerned about the approval of their classmates. They are eager to look and dress like their peers. They are aware that clothing contributes greatly to their personal attractiveness. Clothing plays an important role in their environment.

High school pupils should be helped to appreciate that possession of many items of clothing alone will not make them attractive, unless cleanliness and orderliness accompany them. Tidiness and neatness are important in good grooming and acceptance by others.

The natural interest of pupils in clothing should be utilized to provide opportunities for them to observe and practice correct methods of clothing care. The standards of living in the homes of the community influence to a large measure the types of learning experiences to be selected in clothing.

In the enthusiasm for making a new garment, pupils often rush into its construction without the preliminary knowledge about procedures. Teachers should take care to provide enough practice to develop the skills necessary for clothing

construction techniques. Estimation of cost in terms of money and time spent on the project should be the basis for evaluation of clothing construction.

Unit 1 : You and Your Clothing

Concepts : The importance of clothing in personal appearance. Basis for selection of clothes

Related Understandings and Skills

Develop understanding of clothing from the standpoints of health, appearance, comfort and economy

Develop appreciation for clothes as an expression of beauty and as a means for creative self-expression.

Understand the qualities to be looked for while selecting fabrics for garment construction

Suggested Learning Activities

Discuss your clothing needs.

Discuss the selection of clothing in relation to health, appearance, comfort and economy.

Prepare charts to explain the merits of clothing as protection against the atmospheric conditions of heat, cold, mist, rain, dust and draught

Examine different ways of dressing, using various materials for enhancing appearance.

Organize dress parades

Display different modes of dressing such as, skirt and blouse, shorts and shirts, *salwar kameez*, and *saree* and *choli*.

Evaluate the comfort in these modes.

Collect samples of materials to compare their cost, durability and care.

Collect samples of materials which will harmonize in colour

Visit the bazaar to see the displays of clothing materials

Discuss and prepare charts on the principles involved in the selection of clothes,

Discuss the above principles in application as evidenced from what pupils wear.

Make models of dolls and dress them according to the principles of clothing

Select samples of materials which will harmonize in texture

Assemble samples of different materials such as cotton, silk, wool and synthetics, such as rayon and terelene

Compare the qualities of the different fabrics by simple tests

Compare the washability of the different fabrics.

Discuss the suitability of fabrics in terms of climate, sex, age, size and occasion

Establish criteria for appropriateness of clothing.

Conduct a dress parade to judge the appropriateness of clothing for the different purposes

Unit 2 : Construction of Garments

Concepts : Principles of construction of clothing.

Economical use of clothing

Aesthetic values in clothing

Related Understandings and Skills

Understand the basic principles underlying construction of simple garments.

Acquire skills in drafting and construction.

Develop abilities to evaluate the clothes constructed.

Suggested Learning Activities

Learn to locate the sites for taking body measurements for clothing construction

Take body measurements

Discuss the different tools for garment construction.

Assemble a sewing kit

Discuss the principles and steps in constructing garments.

Prepare the fabrics for stitching a handkerchief and a table cloth.

Construct a handkerchief and a table cloth

Demonstrate the drafting of a blouse.

Draft the patterns for a blouse.

Cut and construct a blouse.

Draft and construct a skirt,

Collect different types of fasteners and find out their suitability.

Fix the fasteners in the garments stitched

Make button holes where necessary

Fold and iron the garments constructed.

Draw up a check list to evaluate the garments constructed,

Evaluate the garments

Make suggestions for improvements

Unit 3 : Care of Clothing

Concepts : Proper and timely care of clothing saves money.

Pride in promotion of dignity of labour

Related Understandings and Skills

Understand the different methods of washing which will be suitable for various fabrics

Develop abilities to protect clothing articles

Suggested Learning Activities

Discuss the values of correct washing procedures in the care of fabrics

Demonstrate the correct procedures for washing different fabrics and clothes.

Demonstrate the procedures for bleaching and starching

Demonstrate the correct methods of drying.

Demonstrate how to press and iron different fabrics and clothes

Discuss the proper methods for storing clothes

Discuss equipment for storage of clothing, cupboards, trunks, wardrobes, and hangers

Discuss the importance of good choice of fabrics to guard against deterioration

Discuss the ways of storage by which clothes can be preserved.

D. Health, First Aid and Home-Nursing

Health and safety are the foundations for all phases of home-making. They are closely associated with child care, clothing, housing and nutrition. Community organizations concerned with health such as the Red Cross, Primary Health Centres, Maternity and Child Health and Community Development Blocks should provide opportunities for pupils to participate in health activities.

Caring for the sick in the home is one of the common demands every family needs to face. Therefore, instruction in the basic skills of keeping the family well and simple home-nursing is meaningful to high school pupils. The success of teaching health, first aid and home-nursing depends upon the emphasis placed on health problems and practices of the pupils, their homes and community.

High school pupils must feel adequate to help in their family health problems. Ability in making a sick person comfortable at home must be acquired. Simple techniques in caring for the sick must be learnt and practised. Skills such as improvising equipment, preparing diets for the sick, arranging the sick room, caring for the patient and administering first-aid should be taught.

Emphasis should be laid on the positive approach of keeping well. The importance of practising health habits, and the relationship between mental and

emotional attitudes and health should be appreciated. Developing and maintaining a calm attitude in case of family illness and emergency should be stressed.

"Prevention is better than cure". Sanitation is an important factor in health living. Recognizing symptoms of illness, home care of the sick, importance of pleasant surroundings for the recovery of the sick, home environment affecting health of individuals and communities, first-aid, mental hygiene are all basic understandings in the area of Health, First Aid and Home-Nursing.

Unit I · Protection Against Diseases

Concepts : The diseases and their classification

Causes for the diseases and their spread

Methods of protection against diseases.

Related Understandings and Skills

Gain knowledge of prevalent diseases and their classifications.

Acquire knowledge of the causes for diseases

Develop appreciation for protection against diseases.

Suggested Learning Activities

List the occurrences of diseases in your home in the past year

Visit the local hospital to find the frequency of occurrence of certain diseases

Refer books and reports to learn statistics on disease prevalent in your state

Discuss the classification of diseases.

Meet the local Health Officer, other specialists and discuss the causes for the prevailing diseases

Visit your community or a village to find out how many of the causes mentioned can be seen

Study the life history of disease carriers

Observe and report on the rules of hygiene and health followed in your home and suggest improvements.

See and discuss films on spread of diseases and their prevention

Study the immunization schemes for protection against diseases.

Assess how much of these benefits have been availed of by the members in your family and neighbouring families

Discuss the health practices which are basic to protection against diseases.

List the violations of these practices in the community and suggest ways of preventing them.

Unit 2 . Care of the Sick

Concepts Causes for and symptoms of illness
Home care of the sick.

Related Understanding and Skills

Develop ability to recognize symptoms of illness.

Understand the ways of being helpful in the home during illness

Understand the ways of caring for the sick

Suggested Learning Activities

List the illnesses recently you have had and their symptoms

Read books to know more clearly the symptoms of different diseases.

Discuss the physical, mental and emotional conditions of a person who becomes sick.

Discuss what special demands these conditions make on the people and the environment.

Dramatize or role-play the situations of persons being sick to elicit their special needs and what members of the family can do for them.

Discuss the behaviour of the sick person and the art of being an understanding patient.

Discuss the ways of making the room attractive for the patient.

List the sanitary precautions to be followed in preparing the room for the sick and understand the reasons for them.

List and practise simple medical attention and requirements such as taking temperature, observing the pulse etc., for the sick.

Practise making the bed for the sick, and changing sheets for the patient

Unit 3 : Being Prepared for Emergencies

Concepts : Being prepared for common emergency situations reduces the tragedies in life
Preparation for emergencies is part of living.
Administering the appropriate first-aid is important

Related Understandings and Skills

Gain knowledge of the common emergency situations

Suggested Learning Activities

Review the reports of accidents published in the dailies

Discuss whether or not the treatment given was timely and proper.

Elicit what steps should be taken in different types of emergencies

Dramatize some emergency situations,

Understand the psychology of a person in emergency

Discuss the feelings of a person who has met with an accident

Role-play some situations involving accidents to children and adults to understand the feelings

Discuss how to give assurance and confidence to the persons in emergencies

Gain knowledge about the various first-aid measures

Demonstrate first-aid to be given for fire accidents.

Demonstrate methods of giving artificial respiration. Demonstrate the first-aid to be given for a drowned person.

E. Child Development and Mother Craft

High school pupils enjoy playing with and caring for babies and small children. Therefore, the study of Child Development should enable them to be more intelligent and responsible while caring for children.

The teacher must find the extent of association of the pupils with small children, the number of pupils who have younger brothers or sisters, or cousins. Out of the experiences provided in the area of Child Development, the natural eagerness in pupils to nurture, to protect, to educate and to love children will be enhanced.

The teacher may approach teaching the area of Child Development by taking the class on a visit to a pre-basic, kindergarten or nursery school in order to make observations on children. Pupils may recall childhood experiences which they regard as having had great influence upon them. Pupils who care for younger children in their homes may narrate to the class their experiences and problems. The class may plan to be in charge of the play activities for a group of children in the locality.

Expectant mothers may be invited to talk to the class about their looking forward to and preparations for the arrival of the new baby. Pupils may visit baby wards in hospitals and clinics and observe feeding, bathing and dressing of infants. A nurse or midwife may talk to the class about the care of pregnant mothers and infants.

The learning of Child Development and Mother Craft can be culminated through activities such as .

1. The class giving a party for a group of young children.
2. The class participating in nursery school activities where facilities are available.
3. The class preparing an exhibit of pictures, pamphlets and posters on Child Development and inviting their parents, friends and others in the community.

4. The class collecting baby kits and albums.
5. Visits to orphanages, child care clinics, *balwadis*, *bal vihars* and other institutions for the care of small children.

Unit 1 : Being with Children

Concepts Appreciation of the joy of being with children

Knowledge of keeping the children engaged fruitfully

Related Understandings and Skills

Appreciate being with children.

Suggested Learning Activities

Report on the instances you had spent with children in your family.

Observe children in a nursery school.

Discuss the reasons why you enjoy children (Discussion 66)

Collect proverbs regarding the nature and importance of children.

Report on what great leaders like Nehru, Gandhi and others had said about children.

Conduct a panel discussion on children's rights.

Gain knowledge of problems in being with children

Report on the difficulties you had experienced in being with children

Discuss with mothers and Nursery school teachers about the problems tackled

Observe how they overcame those problems.

Discuss the effectiveness of the methods used by them.

Unit 2 : Understanding Children

Concepts Fulfilment of the needs of children facilitates their development. Application of appropriate methods in working with children helps to build positive attitudes.

Related Understandings and Skills

Gain knowledge of the needs of children.

Suggested Learning Activities

Discuss the factors contributing to the over-all development of children.

Observe and report how children express their needs.

Study the effects of the unfulfilled needs on children

Understand the stages of development of children

View films on the development of children.

Discuss body growth and its rate in relation to age.

Understand the methods of working with children

Study the height-weight records of infants and children.

Maintain a record of the weights of infants and children for six months to study their rate of growth.

Discuss the meaning of norms and individual differences.

Observe how mothers in the home and teachers in nursery school guide children.

Discuss in the class the successful and unsuccessful situations with regard to guiding children, drawing out the reasons.

Evaluate your own behaviour to see when it is easy for you to act as desired by others

Acquire skills in working with children

Apply the generalizations drawn about the development of children while you work with children in the home, i.e., when telling stories, helping them to eat, etc

Discuss in the class the reports of pupils on their achievements with children.

*Unit 3 . Preparation for Arrival of Children**Concepts . Care of the infant starts with the onset of pregnancy*

The greater the care in the beginning of the infant's life, the better will be the chances of his success

Related Understandings and Skills*Gain knowledge of the growth of the baby in the uterus***Suggested Learning Activities**

Discuss the developmental stages of the fetus in the uterus.

Learn about the special needs of the mother during pregnancy.

Visit a maternity hospital to learn about the advices given by doctors to pregnant women.

List the problems stated by pregnant women.

Summarize the precautions to be taken during pregnancy.

View a film on "Arrival of Baby"

Gain knowledge of the preparations to be made for the arrival of the children

Discuss and list the things needed for the arrival of the baby with the reasons

Observe in the home or hospital how preparations are made for delivery.

Learn the traditions and customs associated with children and their significance

F. Human Relationships

High school pupils are full of changing attitudes and experiences. Some changes bring satisfactions and fulfilment, while others lead to unhappiness. Being adolescents, they are in a transitional period of life, during which, most of their problems are due to adjustments with their families, friends, and social environment. Therefore, they are naturally interested in learning to live with people happily and satisfactorily, and maintaining happy relations with others.

One of the goals of teaching human relationships is to help pupils understand themselves and their needs, and find means of fulfilling them without infringing on others' rights. They should be helped to realize their needs as individuals, and as members of a family or group. They must be assisted in understanding their relationships and duties to the members of the family, friends and others. Their obligations to the home, school and community should be pointed out in order that they may progress towards a happy, democratic living.

Adolescents are in the process of adjusting to the emergence of adulthood. In early adolescence, they need help in recognizing the physiological changes in order that they may better understand themselves and others. They need to understand their physical, mental, emotional and social development. Therefore, the material presented should be suitable to their needs and the age-group, regardless of the particular class. Discussion and participation in activities provided in this area can help them in cultivating sound attitudes towards their problems arising out the transition and ability to make decisions. Respect for others' point of view, and accommodating changing points of view should be promoted.

The teacher's understanding of the cultural patterns, attitudes, values in pupils' homes and community is very important. Families vary, but pupils learn to accept the differences and similarities as parts of living. Emphasis should be placed on ways of making and keeping friends. The home must be considered as the centre of social activities. Pupils' best understandings spring and grow from genuine enjoyment of homes where democratic living is practised. They should recognize values of leisure time and freedom of action with self-control. Above all, they should appreciate the place of family, home and motherhood in the community.

The area of human relationships has much personal feeling and the opinion of the peer group is of the utmost importance and greatest influence to the pupils. Therefore, the teacher should restrain giving opinions which are likely to ridicule or hurt the pupils. Out of the teacher's suggestive, imperceptible and tactful direction

the pupils must internalize and formulate their values which would help to establish desirable human relations and face life realistically.

The approaches to this area can be through cartoons, discussions, radio programmes, buzz sessions, movies, the question box, poems, talks from experienced persons and leaders, celebrations of birthdays and festivals, picnics, essays, dramatics and debates. The teaching in this area can be further highlighted by organizing exhibits regarding duties of citizenship, participating in student volunteer services during festivals and *melas* and arranging a display of hobbies.

Unit 1 . You and Your Friends

Concepts : All people need to love and be loved

Each member's contribution to friends must be considered in the light of her or his capacities.

Successful living depends upon successful relationships with others.

Related Understandings and Skills

Develop ability to understand the need for social relations

Suggested Learning Activities

Discuss the urge in human beings to seek company.

Elicit the contributions of group activities for individual satisfactions.

Compare the emotional tone of the activities done alone, and in groups

Understand the factors involved in getting along with others.

Discuss the criteria you use in selecting your friends and the qualities not liked by you

Read stories on great friendships in history to understand the qualities that contribute to lasting friendships.

Recognize the need to self in order to get along with others

Prepare a check-list for self-evaluation of personal qualities.

Discuss the methods of improving some of your habits or behaviour which hinder friendship.

Implement and evaluate the methods suggested.

Unit 2 : You and Your Family

Concepts : The family is the basic social unit.

Harmony among family members is fundamental to satisfactory living.

Related Understandings and Skills

Understand the bonds of relationships in families.

Suggested Learning Activities

List the types of relationships that exist in families . Father-mother, mother-child, etc.

Discuss the simultaneous demands which are made on one person by several people

Develop ability to understand the factors which facilitate or hinder harmony among family members.

Discuss the situations that produce stress in human relations in families.

Interview families whom you consider live in harmony and find out what helps them understand each other.

Role-play several situations either depicting harmony or the lack of it to locate the reasons for conflicts and methods of overcoming them.

Unit 3 : You and Your Community

Concepts : The individuals constitute the community.

One's welfare is determined by mutual contributions between the individuals and the community.

Related Understandings and Skills

Gain knowledge of the contribution of the community to one's welfare.

Suggested Learning Activities

List the number of organizations or facilities available in your community which you and your families use.

Discuss how these organizations or facilities promote the welfare of the members of your family.

Read literature to find out the evolution of the community organizations in some countries.

Discuss the concept of a community to understand that individuals constitute a community.

Observe life in the home, in the school and in the community to list the failures on the part of individuals which spoil the community.

Discuss what you or your school can do to prevent these failures.

Take up an education or welfare programme in your community.

The suggested activities are only sample activities. There are numerous other activities and experiences which a teacher has to think through while planning the year's programme.

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CHAPTER 11

The Home Science Department Space Requirement and Furnishings

PROVISION of adequate, attractive and comfortable facilities for the Home Science Department, contributes greatly towards pupil's learning and enjoyment, and teacher's satisfactions. The teacher should be responsible for the procurement of the equipment and supplies for the Home Science Department, and their care and maintenance. She must ensure that the necessary equipments are available to begin with, and also suggested the additions, replacements and alterations, whenever necessary. It is possible, even within limited finances, to have Home Science rooms that are homelike, attractive and suited to the academic and curricular requirements.

Home Science programmes in high schools need to be geared to prevailing patterns in family life. The atmosphere in the Home Science rooms where pupils work on family living problems should stimulate that of the home. At the same time, the furniture and equipment must be strong and durable to withstand the hard wear of school use.

Location of the Home Science Room

The Home Science room may be located on any floor as a separate department in the main building of the school. There are many advantages on the ground floor near an entrance to the building, because of the resulting economy in installations and water connections. Moreover, delivery of articles, removal of garbage and access to pupils and others will be easy.

Planning the Home Science Department

Some factors to be considered in planning the Home Science Department are :

1. The curriculum—A broad programme of Home Science will include work in :
 - (a) foods, nutrition and cookery ;
 - (b) child development and mother craft ;
 - (c) textiles, clothing and laundry ;
 - (d) household management ;
 - (e) health, home nursing and first-aid ; and
 - (f) human relationship.
2. The type of class organization.
3. The number and size of classes—space and equipment needed must be sufficient for the largest class.
4. The number of periods the room will be occupied.
5. Uses to be made of the space and equipment by the school and community—The Home Science Departments should be planned to provide a place for teaching parents as well as youth in the community. Family members should be encouraged to come to the school for information, study of home problems and consultations.
6. Provisions for future expansion—In planning a new building the probable growth in the number of pupils opting Home Science in the years ahead needs to be considered, and provision made accordingly.
7. Other school facilities available.
8. The types of homes in the community—Pupils are expected of practise the learnings from the Home Science room in their own homes. Therefore, the equipment in the Home Science rooms should set standards attainable by a majority of homes. Simple, attractive, up-to-date equipment and furniture will encourage pupils to make improvements in their homes. On the other hand, if the Home Science rooms are equipped with costly and unfamiliar articles which pupils cannot afford to have in their homes, they are likely to be indifferent and not practise at home what they have learned at school.
9. The money available—The Home Science facilities which are planned will depend on the amount of money available. However, no Home Science programme should go into operation without ensuring that the minimum requirements would be met.

Space

The Home Science Department can have one or more rooms depending upon the size of the room (s), size of the class, size of the school, money available, uses to be made of the department and anticipated needs for expansion. An all-purpose room is one which is equipped for teaching all the areas of Home Science. It should have flexible arrangement by having movable furniture. Since a variety of activities are to be provided, the arrangements in the room should lend themselves for quick alterations; for instance, to project a picture, to arrange a food demonstration, to hold a discussion and to conduct a socio-drama.

A multipurpose room for laboratory work attached to a separate living room provides better facilities for teaching. Besides the all-purpose room, additional rooms may also be planned for special purposes such as clothing and home management. If the teacher has the opportunity to be associated with the planning and construction of the Home Science building, she should foresee the storage requirements and plan in such a way that most of them are met through built-in shelves and cupboards.

Figure 5 shows the plan for an all-purpose one-room Home Science Department in which six groups of six pupils each can work simultaneously.

SUGGESTED ADDITION TO THE ALL-PURPOSE ONE-ROOM HOME SCIENCE DEPARTMENT

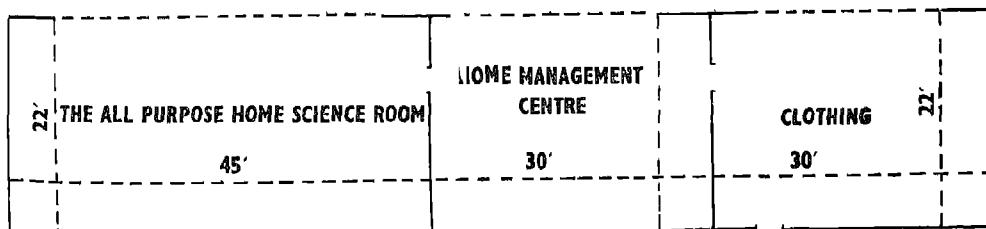
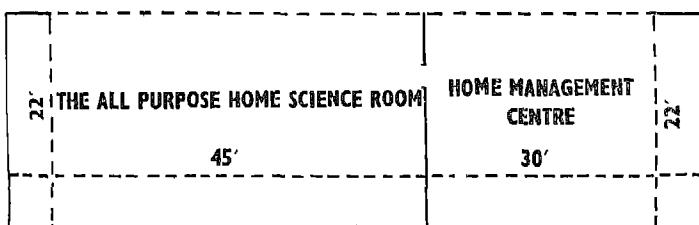


Fig. 5

The Home Science Department shown in Figure 5 includes :

1. a centre for classroom ;
2. a lounge where pupils may study or relax, and learn practical experiences in furniture arrangement and interior decoration ;
3. a centre for teaching health, hygiene and home-nursing ;
4. an area for teaching clothing construction ;
5. a section for teaching home management, child development and mother craft ;
6. a space for laundry ;
7. a kitchen for studies on food and nutrition , and
8. a place for the teacher with provision for keeping her teaching aids and books.

All these centres have adequate storage provision.

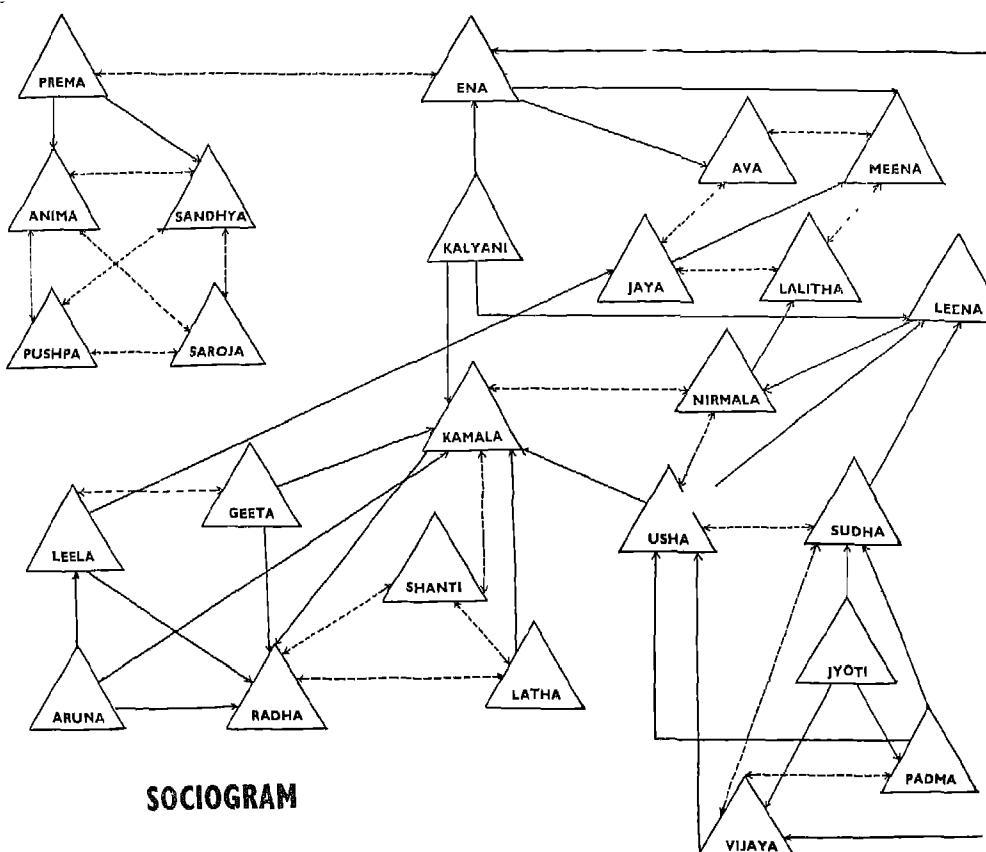


Fig. 6

Figure 6 represents the plans for the possible additions to the all-purpose one-room when funds and other facilities permit.

Characteristics of a Good Home Science Department

The marks of a functional Home Science department are :

1. Adequacy of space and equipment for teaching all the areas in the curriculum.
2. Provision of equipment that is typical of those used in the homes in the community, suitable to different income levels and of obtainable standards.
3. Attractiveness in appearance with pleasantly coloured walls and 'home likeness' in atmosphere.
4. Flexibility in arrangement of equipment and facilities.
5. Working conditions which are safe.
6. Adequacy of storage facilities.
7. Availability of equipment and furnishings which are easy to care for with minimum effort and washable floors.
8. Adequacy of lighting—both natural and artificial.
9. Good ventilation.
10. Provision of water supply inside the laboratory.
11. Provision for efficient disposal of waste.

Work Centres

In order to provide for all the activities included in the home science curriculum, the teacher should plan for various types of work centres in the department, many of which can be used for more than one activity.

The work centres need to be planned for the following activities :

Activity	Requirements
1. <i>Preparing and serving</i> Fireplaces, sinks, work spaces, kitchen equipment, utensils, meals.	linen, cutlery and provisions for care and disposal of garbage.
2. <i>Selecting and constructing</i> clothes.	Sewing machines, tables and chairs, irons and ironing boards spaces for fittings garments, mirror and sewing kits.
3. <i>Home furnishings and house care.</i>	Living dining centres for experiences in hospitality. Pictures furnishings, equipment for cleaning the house, and accessories for interior decoration.

4	<i>Arranging and caring for different rooms.</i>	Space for providing experiences in planning, arranging and caring for different rooms, equipment for the house
5	<i>Taking care of the sick</i>	Space for home care of the sick, beds, linen, first-aid kits and basins. (The sick room in the school will be the ideal place for this experience.)
6.	<i>Laundering</i>	Sinks, tubes, buckets, washboards, ropes, clips, baskets, irons and ironing boards.
7.	<i>Child Development.</i>	Toys, books for children, record players and albums.
8	<i>Planning and discussion by small groups.</i>	Table, chairs, and blackboard
9	<i>Teacher's work.</i>	Desk, files, cabinets and storage facilities for note books and stationery.
10	<i>Display.</i>	Bulletin boards, notice boards, chairs, shelves and teaching aids
11.	<i>Reading</i>	Tables, chairs, bulletin boards for display, cupboards for books, journals and tables for measures.

Storage

Space for most of the storage in a Home Science department can be provided as built in shelves in the walls for reference and teaching materials. Besides meeting the requirements of the department, storage needs to be provided for the books and personal belongings of pupils.

Storage space must be specifically provided for :

1. *Foods, Nutrition and Cookery*

- (a) Shelves for dishes, utensils and equipment not in daily use.
- (b) Meat-safe or cupboard for staple food supplies.
- (c) Cupboards for linen.
- (d) Place for crockery, cutlery and other serving dishes.

2. *Textiles, Clothing and Laundry*

- (a) Shelves for files and sewing accessories such as needles, thread, scissors, pins, tumbles, markers, and paper.
- (b) Shelves for irons and ironing boards.
- (c) Racks for soaps and supplies for laundry.
- (d) Place for accessories for stain removal.

- (e) Cabinets in which pupils may store their work materials.
- (f) Space for hanging garments being constructed and completed.

3. *Home-Nursing and First-aid*

If there is no sick room in the school, where pupils can have practice, space is needed :

- (a) for bed and,
- (b) for shelves for keeping the home-nursing and first-aid equipment and supplies.

4. *Child Development and Mother Craft*

Storage cabinets are needed for :

- (a) toys,
- (b) books, and
- (c) supplies for bathing, feeding and dressing infants.

5. *Home Management and Care of the House*

- (a) Storage space for supplies and equipment for house cleaning.
- (b) Shelves for articles and vases for home decoration.
- (c) Cabinets for equipment and supplies for repairing and renovating furniture.
- (d) Cupboards for household linen.

The Home Science department should set standards for the homes in the community in harmony with their socio-economic conditions and aspirations. It should be in keeping with the income levels of the community. The equipment should be adequate to provide for instruction in all phases of home-making. Periodical improvements should be effected in the light of new developments. Adequate equipment and instructional materials such as text books, other reference materials and audio-visual aids should be supplied.

The following are some questions to be considered while selecting equipment and furnishings :

1. Do they promote flexibility in use and arrangement ?
2. Do they involve application of the principles of art ?
3. Are they durable ?

4. Are they obtainable within the standards of living of the community ?
5. Can they provide meaningful learning experiences ?

A suggested list of equipment and furniture for a Home Science Department is given in the following pages.

For Six Groups of Six Pupils in Each Group

EQUIPMENT

	Number Required	Approximate Price Rs.
1. Brass mixing bowls set of 3 different sizes	6 sets	72.00
2. Brass pans for cooking (<i>patilas</i> or <i>dekkhis</i> 4 in each set)	6 sets	144.00
3. Kitchen knives	6	21.00
4. Chopping knives	6	12.00
5. Bread knives	3	18.00
6. Cutlery set containing table-knife, fork, teaspoon and table spoon	6 sets	48.00
7. Frying spoons perforated	6	18.00
8. Frying spoons, not perforated	6	18.00
9. Flat ladles	6	18.00
10. Aluminium kettles	6	36.00
11. <i>Kadais</i> (deep frying pans)	6	30.00
12. Shallow frying pans (aluminium with handles)	6	30.00
13. <i>Tavas</i> (for chapati or dhosai)	6	18.00
14. Mugs—polythene	6	12.00
15. Dinner set (crockery)	1 set	120.00
16. Tea set (crockery)	2 sets	8.00
17. <i>Thalies</i> (A set of one stainless steel plate, with 6 <i>katories</i> (cups) for serving food).	12 sets	400.00
18. Trays (metal)	6	24.00
19. Water glass	6	24.00
20. Glass tumblers	36	18.00
21. Double boilers (aluminium)	2	18.00
22. Wooden rollers and boards	6	24.00
23. Pairs of tongs (<i>chimta</i>)	8	10.00
24. Biscuit cutters	6 sets	15.00
25. Jelly moulds (different sizes)	6	15.00
26. Potato mashers	3	12.00
27. <i>Dhokla</i> makers	3	12.00

		Number Required	Approximate Price Rs
28	Coffee maker (filter-stainless steel)	1	20.00
29.	Coconut graters	6	8.00
30.	Egg beaters (stainless steel)	6	30.00
31	Wire strainers	6	15.00
32.	Flour sieves (coarse)	6	6.00
33.	Flour sieves (fine)	6	6.00
34	Tin cutters	2	5.00
35.	Can (bottle) openers	2	5.00
36	Kitchen scissors	1	3.00
37.	Grinding stones	3	15.00
38.	Ice-cream machine	1	75.00
39.	Copper water boiler	1	250.00
40	<i>Iddli pathram</i> (steamer)	3	60.00
41.	Stainless steel serving spoons	12	30.00
42.	Pressure cooker	1	100.00
43.	Oven for baking	1	75.00
44.	Sigrees	6	18.00
45	Kerosene stoves	6	60.00
46.	Containers of different sizes to store food (metal)	24	48.00
47	Containers (aluminium) of different sizes	12	214.00
48.	Big jars for storing foods	12	180.00
49.	Indian balance (scales with metric weights)	2 sets	150.00
50	Volume measures (metric—aluminium)	6 sets	114.00
51	Cooking thermometers	2	8.00
52.	Measuring cups (aluminium)	12 sets	60.00
53.	Measuring spoons—plastic or aluminium	12 sets	18.00
54	Food weighing scales (metric)	1	150.00
55.	Food trolley	1	120.00
56	Refrigerator (if funds permit)	1	1200.00
			<hr/> 4310.00

II. Housing and Home Management

1.	Labour saving devices (scrapers, parers, slicers,- churners, etc.)	6 sets	120.00
2.	Flower vases	12	60.00
3.	Tools—hammer, nails, etc.	2 sets	60.00
4.	Garbage baskets (metal)	6	30.00
5.	Containers of different sizes	12	50.00
6.	Curtain, window rods and accessories	1 set	200.00
7.	Pictures	12	200.00
8.	Art pieces around	24	200.00
			<hr/> 920.00

	Number Required	Approximate Price Rs.
<i>III. Textiles, Clothing and Laundry</i>		
1. Enamel bowls for mixing blue	6	9.00
2. Basins of 3 different sizes	6 sets	100.00
3. Buckets (polythene)	12	180.00
4. Dippers	6	9.00
5. Kettle (aluminium)	6	36.00
6. Tubs	6	40.00
7. Scrubbing boards (wash boards)	6	38.00
8. Ladies	6	18.00
9. Sewing machine—electric	3	2,400.00
10. Sewing machine—non-electric	3	1,200.00
11. Pairs of scissors	12	48.00
12. Electric iron	2	150.00
13. Charcoal irons with rings for resting	6 sets	60.00
14. Boiler for water	1	250.00
15. Kerosene stoves	2	30.00
16. Tongs	2	3.00
17. Microscope	1	1,200.00
18. Slides	12 dozens	4.00
19. Test tube racks	12	25.00
20. Test tubes	24 dozens	48.00
21. Hand blocks for printing	12	72.00
22. Sewing accessories		
1. T-square		
2. Measuring	6 sets	90.00
3. Needles and pins		
		<hr/> 7,090.00

IV. Health, First-Aid and Home-Nursing

1. Tea set	1	40.00
2. Feeding cup	1	2.00
3. Rubber sheet	1	15.00
4. Bedding (mattress, pillow, blanket)	1 set	200.00
5. Hot water bottle	1	15.00
6. Enema can	1	10.00
7. Ice bag	1	10.00
8. Medicine glasses	2	2.00
9. Glass tumblers	2	2.00
10. Basin	1	3.00

		Number Required	Approximate Price Rs.
11	Human weighing machine	1	500.00
12.	Pairs of scissors	2	8.00
13.	Nail cutters	2	8.00
14.	Microscope	1	1,100.00
15.	Clinical thermometers	2	5.00
16.	First-aid boxes	1	20.00
17.	Basin stand	1	10.00
18.	Towel rack	1	10.00
			<hr/> 1,960.00

V. Child Development and Mother Craft

1.	Feeding kit containing bottles, brushes, bottles and caps, steamer, measuring equipment, mixer, etc.	2 kits	80.00
2.	Bathing kit containing basin, tub, <i>patila</i> , stove, tongs, etc.	1 kit	50.00
3.	Children's toys		250.00
			<hr/> 380.00

VI. Gardening

1.	Baskets	6	8.00
2.	Garden forks	6	36.00
3.	Shovels	6	30.00
4.	Buckets	6	30.00
5.	Water-spraying cans	6	30.00
6.	Spades	6	24.00
7.	Pick-axes	6	30.00
8.	Garden scissors	6	72.00
9.	Measuring tape—30 meters	1	10.00
10.	Sickles	6	20.00
11.	Indian balance and sets of weights (metric)	1	10.00
12.	Hose	50 metres	100.00
			<hr/> 400.00

FURNITURE

I. Foods, Nutrition and Crockery

1	Working tables with shelves and cupboards.	6	1,800.00
2.	Storage cupboards (built in)	4	2,000.00

	Number Required	Approximate Price Rs.
3 Meat safe	2	240 00
4 Stools	24	240 00
5 Black-board	1	50 00
6. Towel racks	6	12 00
7. Bulletin board	1	20.00
		4,362 00

II. Housing and Home Management

1. Furniture for the home	1 set	800 00
2. Almirah for storing linen	1	250.00
3. Book shelf	1	150.00
4. Foldable screens	1 set	300.00
		1,500.00

III. Textiles, Clothing and Laundry

1 Working table 12' x 7' x 3'	1	400 00
2. Stools	2	30 00
3. Black board	1	50 00
4. Bulletin board	1	30 00
5. A show case	1	250 00
6. A big cupboard for storage	1	150.00
7. Ironing boards	2	50 00
8. Clothes driers	6	80 00
9. Full length mirror	1	100 00

		1,140 00

IV. Health, First Aid and Home Nursing

1. Cot	1	120 00
2. Table	1	60.00
3. Chairs	2	40.00
4. Easy chair	1	20.00
5. Medicine chest	1	100 00
6. Book shelf	1	20.00
7. Almirah	1	250,00
8. Chart stand	1	50.00

		660 00

Number Required	Approximate Price Rs.
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GENERAL

1. Notice boards	2	30.00
2 Flannel board	1	80.00
3 Demonstration table with mirror arrangement	1	400.00
4 Filling cabinets	2	600.00
		<hr/>
		1,110.00

LINEN

I. Foods, Nutrition and Cookery

1. Dusters	4 doz.	36.00
2 Moppers	1 doz.	12.00
3 Wipers for glass-ware	2 doz.	24.00
4. Wipers for aluminium-ware	2 doz.	24.00
5. Table cloth	2	16.00
6. Hand towels	2 doz.	48.00
7. Napkins	2 doz.	24.00
		<hr/>
		184.00

II. Textiles, Clothing and Laundry

1 Bed sheets	4	36.00
2. Blankets	2	60.00
3. Dusters	12	9.00
4. Moppers	12	12.00
		<hr/>
		117.00

III. Housing and Home Management

1. Door and window curtains	1 set	150.00
2. Accessories for furniture and interior decoration		200.00
3. Carpets	2	150.00
4. Dusters	4 doz.	36.00
5. Mats	6	24.00
		<hr/>
		560.00

Number Required	Approximate Price Rs.
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IV. Health, First-Aid and Home-Nursing

1	Bed sheets	6	60.00
2	Pillows	2	20.00
3.	Hand towels	12	18.00
4	Towels	12	36.00
5.	Napkins	4	4.00
6.	Pillow cases	6	18.00
7	Bed spreads	2	30.00
		—	—
		186.00	—
		—	—

V. Child Development and Mother Craft

1	Towels	12	24.00
2.	Napkins	24	12.00
		—	—
		36.00	—
		—	—

FIXTURES

I Food and Nutrition

1.	Sinks with draining boards	6	
2.	Utensil rack with hooks and holes	6	2,500.00
3.	Wall cupboard-small size	6	
		—	—
		—	—

II. Textiles, Clothing and Laundry

1.	Sink and drainage arrangements	4	
2.	Wall shelves	4	1,000.00
		—	—
		—	—

SUMMARY

Equipment	...	Rs. 15060
Furniture	..	Rs. 7932
Linen	..	Rs. 1083
Fixtures	..	Rs. 3500
General	...	Rs. 1110
	—	—
Grand total :—		28685
	—	—

REFERENCES

Hatcher, Hazel, M., and Andrews, Mildred E. *The Teaching of Home Economics*. Boston: Houghton Mifflin Co , 1963.

Williamson, Maude and Lyle, Mary Stewart. *Home Making Education in the High School*. New York : Appleton Century Crofts Inc., 1961.

The Home Science Department

Management and Maintenance

A HOME SCIENCE department, like home, is a living centre, a business centre and a social centre. Co-operation in living together is one of the goals of Home Science education. Therefore, maintenance of a home-like atmosphere in the department should be one of the primary aims of every Home Science teacher. The basic principles of management apply to the school as in the home, but details of their use and applications differ. The home is used all the 24 hours of a day, and the parents are responsible for its maintenance. On the other hand, although the Home Science department is engaged for limited hours, it is used in a multifaceted manner by several persons. For maximum learning to take place, the teacher should ensure that the equipments are properly cared for and maintained in sound working conditions always. She should take immediate action for any defect noticed and not wait until the equipment is needed again at a future date. This will avoid a great deal of frustration that is likely to result among the pupils and the teacher when they find equipment in disrepair.

In a Home Science department, cleanliness is important, since pupils are to develop the attitudes and habits which are necessary for maintaining a clean and orderly home. A good Home Science programme should make pupils sensitive to the

realization that dirt and disorder are disgraceful. Daily cleaning should be a built-in feature of the teaching programme and carried out regularly. Definite plans should also be laid for the special cleaning which would be required periodically. The effectiveness of these plans and their execution needs to be evaluated constantly. The work centres must be arranged attractively in a manner conducive to learning. Since many pupils use the facilities of a Home Science department, order is of utmost importance. Supplies and aids must be arranged neatly in the places assigned for them with easy accessibility and convenience in handling. Instructions with regard to lending, returning and replacement of equipment and supplies must be readily available.

In Home Science classes, pupils are expected to learn maintenance of accounts. Considerable amounts of money are also spent by the teacher for carrying out the learning experiences. Therefore, business practices are important for maintaining accounts and records, handling the purchase of supplies and accessories, and living within the budget. The teacher should maintain the following records effectively :

1. Stock or inventory for non-consumable articles.
2. Contingencies.
3. Books and other publications.
4. Teaching aids.
5. Articles prepared or made out of the contingencies.
6. Special activities such as study tour.

Entries in the record should give :

1. Up-to-date position with regard to quantity and quality ;
2. adequacy or other-wise to meet the needs of the pupils ;
3. direction for purchases in the future, and
4. data for analysis and comparison of costs when required.

Evidences of Success of the Home Science Department

The extent of success of management of the department can be determined through the use of a check list as the one suggested below.

A. Orderliness in the Department

Are the equipment in the places allotted to them ?
Are the provisions kept in labelled containers ?

- Are the containers arranged systematically ?
- Are there suitable lids for the containers ?
- Are the furniture in order ?
- Are the contents in the cupboards and shelves arranged neatly ?

B. Cleanliness in the Department

- Are the floors clean ?
- Are the ceilings free from cobwebs ?
- Are the walls clean and without stain ?
- Are the surfaces of equipment and furniture free of dust ?
- Are the linen clean ?
- Are waste paper baskets and garbage bins available where they are needed ?
- Are they used ?
- Is there proper drainage for water ?
- Is the fire place free from smoke and grease ?
- Is the department free from flies, mosquitoes, cockroaches and rats ?
- Are the surroundings of the department kept clean ?

C. Repairs and Upkeep

- Are the floors and the walls in good condition ?
- Are the roofs leak-proof ?
- Are the water taps free from leaking ?
- Are the drainage system free from blocking ?
- Are the metallic fittings free from rust ?

D. Working of Equipment

- Are the equipments sufficient ?
- Are the equipments in working condition ?
- Are the equipments and supplies properly stored when not in use ?

E. Maintenance of Records

- Is there an up-to-date stock register ?
- Are the daily accounts recorded promptly ?
- Are the papers, illustrative materials, and charts filed systematically ?
- Are business procedures consistently followed in the department ?

F. Storage

Is the storage for equipment and provisions adequate ?

Are the storage facilities functional ?

Is the space well utilized ?

G. Teacher-pupil Co-operation

Do pupils and teacher plan co-operatively in the management of the department ?

Are the pupils assigned responsibilities for managing the department ?

Do the parents co-operate with the department ?

Do the pupils bring resource materials for the class ?

H Home-like Setting

Are the facilities in the department in keeping with the economic levels of the families in the community ?

Has the department the necessary furniture and equipment that are used by most home-makers ?

Are the furniture arranged to give a home-like setting ?

Do the furniture arranged give a home-like setting ?

Do the colours and flowers make the department attractive as in the home ?

These essentials of management and maintenance condition the learning process. Hence, they require larger prospective, long term planning and establishment of systematic work habits and procedures.

REFERENCES

Brown, Milon. *Effective Work Management*. New York . Mac Millan Co. , 1960.

Hatcher, Hazel, M., and Andrews, Mildred E. *The Teaching of Home Economics* Boston · Houghston Mifflin Co. , 1963.

Williamson, Maude and Lyle, Mary Stewart. *Home Making Education in the High School*. New York : Appleton Century Crofts Inc. , 1961

The Home Science Department

Library and Reference Materials

HOME SCIENCE department must have a nucleus of latest editions of books written by authors of repute in simple language in the different subjects. Every year, additional books have to be purchased in order to have the information up-to-date. The library must have space adequate for pupils to read comfortably. The teacher should stimulate and guide the reading of pupils by bringing to their attention the attractive books, pamphlets and journals. Definite periods for library work should be assigned in the time-table.

A list of some basic reference books, charts, films, journals, magazines and other teaching aids is given in the following pages. Some are mainly for the teacher's reference. The teacher should select suitable titles for pupils to study under her guidance. A sum of Rs.500 may be provided in the annual recurring budget for this purpose.

BOOKS

S.No.	Title	Author	Publisher	Year of Publica- tion	Price Rs
Food Nutrition and Cookery					
1.	<i>Food and Health</i>	Barbara Callow	Oxford, at the Clarendon Press, London.	1951	23.00
2.	<i>Food for Better Living</i>	McDermott, Irene E., Tailling M.B and Nicholas, Florence	J.B. Lippincott & Company, Chicago.	1954	20.00
3.	<i>Food and Health</i>	Sherman, H.C.	Macmillan and Company, New York.	1948	4.75
4	<i>Our Food</i>	Swaminathan, M. and Bhagavan, R.K.	Ganesh and Co, Madras	1966	6.00
5.	<i>Food</i>	Robert McCarrison	Macmillan & Co., New York.	1957	2.65
6.	<i>Feeding the Family</i>	Swartz Rose, M.	Macmillan & Co., New York.	1957	28.00
7.	<i>Hows and Whys of Cooking</i>	Halliday, E.G. and Noble, I.T.	The University of Chicago Press, Illinois, U.S.A.	1959	55.00
8.	<i>Road to Good Nutrition</i>	Radhakrishna Das, M.V.	Haffkins Institute, Bombay-12.	1961	0.50
9.	<i>Nutrition in India</i>	Palwardhan, V.N.	Indian Journal of Medical Sciences, New Delhi.	1961	25.00
10.	<i>Home Scale Food and Vegetable Preparation Series</i>	C F, T R I.	Central Food Technological Research Institute, Mysore-2.	—	1.00
11.	<i>Cook Book for Children</i>	Mary Alden	Wonder Books, New York.	1955	—
12	<i>The Great Nutrition Puzzle</i>	Callahan Dorothy and Payne Alma Smith	Scribner's Sons, New York	1956	22.00
13.	<i>Nutrition</i>	Chaney Margaret and Ahl Born, Margaret,	Houghton Mifflin Co., Boston	1960	45.00
14.	<i>Introduction to Nutrition</i>	Fleck, Henrietta and Munves Elizabeth, D.	Macmillan & Co., New York.	1962	50.00
15.	<i>Nutrition in the Elementary School</i>	Godshall Francis D.	Harper and Brothers, New York.	1958	22.00
16.	<i>Nutrition for You</i>	Goodhart, Robert, S.	Goodhart, Robert, S. E P Dutton and Co.,	1958	35.00

S. No.	Title	Author	Publisher	Year of Publica- tion	Price Rs.
17	<i>The Heinz Handbook of Nutrition</i>	Heinz, H. J.	McGraw-Hill Book Co., New York.	1959	45.00
18.	<i>Food for Better Performance</i>	Hutchinson, Raymond, C.	Hutchinson Raymond, C., Cambridge University Press, New York.	1958	22.00
19.	<i>Food Becomes You</i>	Leverton, Ruth, M	Iowa University Press, Ames.	1960	28.00
20.	<i>Nutrition Education in Action (A Guide for Teachers)</i>	Martin Ethel, A	Holt, Rinehart and Winston.	1963	37.50
21.	<i>Nutrition Work with Children</i>	Martin, Ethel, A	University of Chicago Press, Chicago.	1954	60.00
22.	<i>Basic Nutrition</i>	McHenry, E. W.	J. B. Lippincott Co., Philadelphia.	1962	42.00
23.	<i>Health and Fitness</i>	Meredith, Florence, Irwin, L. W. and Staten, W. M	D. C. Heath and Co., Boston	1957	30.00
24.	<i>Practical Nutrition</i>	Peyton, Alice	J. B. Lippincott & Co., Philadelphia	1962	45.00
25.	<i>Experiences with food</i>	Pollard, Belle	Ginn and Co., Boston	1961	42.00
26.	<i>Food for People</i>	Reidman, Sarah, R.	Abelard Schuman, Ltd., New York	1954	18.00
27.	<i>Foundations of Nutrition</i>	Taylor (Clare Mae) Macleod (Grace) and Rose (Mary Swartz) Pye	Macmillan & Co., New York.	1965	50.00
28.	<i>Principles of Nutrition</i>	Wilson Eva, D., Fisher Catherine, H. and Fuqua Mary, E.	John Wiley and Sons, New York.	1963	45.00
29.	<i>Food Facts Talk Back</i>	American Dietetic Association	American Dietetic Assn., 620, N Michigan Ave., Chicago, Illinois.	1957	3.50
30.	<i>Everybody's Book of Modern Diet and Nutrition</i>		Dell Publishing Co., New York.	1958	2.50
31.	<i>Reduce and Stay Reduced</i>	Jollife Norman	Simon and Schuster, Inc., New York.	1957	28.00
32.	<i>Teaching Nutrition</i>	McHenry, Earle, W.	J.B. Lippincott & Co., Philadelphia.	1960	28.00

S.No.	Title	Author	Publisher	Year of Publica- tion	Price Rs
33.	<i>Teaching Nutrition</i>	Pattison, M	State College Press, Iowa, 1957 Ames.	30 00	
34.	<i>Feeding Your Baby and Child</i>	Spock Benjamin and Lowenberg Mirian, E.	Duell, Sloan and Pearce, Inc , 1955	50 00	
35.	<i>Food for the Family</i>	Withot, Jennie, S and Batjer, Margaret	J B. Lippincott & Co , Philadelphia.	1960	50 00
36	<i>Introductory Foods</i>	Hughes Osce	Macmillan & Co , New York	1962	45 00
37.	<i>Foods ; An Introductory Course</i>	Justin, Margaret, M , Rust, Lucile Osborne and Vail, Gladys, E.	John Wiley and Sons, New York	1956	30 00
38	<i>Demonstration Techniques</i>	All Good Mary	United States Information Service, Madras.	1966	7.50
39.	<i>Food The Year Book of Agriculture</i>	—	United States Department of Agriculture, Washington D C , U.S.A.	1959	22.00
40.	<i>Salad Book</i>	Better Homes and Garden	Better Home and Garden.	—	22.00
41.	<i>Rice and Rice Diets</i>	FAO	Food and Agriculture Organization of the United Nations, Rome, Italy.	1954	7 50
42.	<i>Food Composition—Table for International Use</i>	Chatfield, C.	Food and Agricultural Organization of the United Nations, Rome, Italy.	1954	7 50
43.	<i>Calorie Requirements</i>	FAO	-do-	1958	7.50
44.	<i>Teaching Better Nutrition</i>	Ritchie, J.A.S.	-do-	1963	15 00
45.	<i>School Feeding—Its Contribution to Child Nutrition</i>	Scott, M.L.	-do-	1953	7 50
46	<i>Food Composition Tables . Minerals and Vitamins for International Use</i>	Chatfield, C	-do-	1959	75.00
47.	<i>Protein Requirements</i>	F.A.O.	-do-	1957	7.50
48	<i>Milk and Milk Products-in Human Nutrition</i>	Kob, S K	-do-	1959	7 50

S No. .	Title	Author	Publisher	Year of Publica- tion	Price Rs.
49	<i>Nutrition Problems of F.A.O. Rice Eating Countries in Asia</i>	-do-	1950	15.00	
50.	<i>Human Protein Requirements and their Ful- filment in Practice</i>	Waterlow, J.C. and Stephen, M. L.	-do-	1960	15.00
51.	<i>Report of the Technical Meeting on Home Eco- nomics for South and East Asia</i>	F.A.O.	-do-	1956	5.00
52.	<i>Nutrition for Expectant Mothers</i>	Kagel, M.B.	Maternity and Child Welfare Bureau, Indian Red Cross Society, Delhi.	-	1.00
53.	<i>Manual of Nutrition</i>	Ministry of Agriculture, Fisheries & Food	Ministry of Agriculture, Fisheries and Food, Edin- burgh.	1961	3.50
54.	<i>Tropical Nutrition and Dietetics</i>	Nicholls, L. Revised by Sim- on, H. M. and Jelliffe, D. B.	Bailliere, Tindall and Co., London.	1961	30.00
55	<i>Food</i>	McCarrison, Robert	MacMillan & Co., Ltd., Calcutta	1956	4.50
56.	<i>Nutrition in India</i>	Patwardhan, V. N.	The Indian Journal of Medi- cal Sciences, Bombay.	1952	10.00
57.	<i>Nutrition for Mother and Child</i>	Venkatachalam and Robellow, L. M.	National Research Labora- tories, Hyderabad-7.	1966	2.00
58	<i>Nutrition in a Nutshell</i>	Williams, Roger, J.	Library Congress, Catalogue.	1962	7.50
59.	<i>Freedom from Hunger : Basic Study Series Nos. 2, 3, 4, 5, 6, 9 and 12</i>	F. A. O.	Food and Agriculture Orga- nisation of the United Nations, Rome.	—	10.50
60.	<i>Fish the Great Poten- tial Food Supply</i>	"	-do-	—	10.50
61.	<i>Six Billions to Feed</i>	"	-do-	—	10.50
62.	<i>Millions Still Go Hungry</i>	"	-do-	—	10.50
63	<i>Elements of Foods and Nutrition</i>	Dowd Mary, J. and Dent Alberta	John Wiley and Sons, New York.	1945	30.50

S.No.	Title	Author	Publisher	Year of	Price Publica- tion Rs.
64.	<i>Planning and Serving Your Meals,</i>	Goldman Mary E.	McGraw-Hill Book Co., New York.	1959	42.00
65	<i>Good Food and Nutrition for the Peoples and Their Families</i>	Amidon, E P and Others	John Wiley & Sons, New York.	—	—
66	<i>Every Day Nutrition</i>	Todhunter, E. N.	Whitcomb and Jombu Ltd..	1958	7.20
67.	<i>Human Nutrition</i>	V. H. Mootram	Edward Arnold Publications, London.	1954	8.50
68	<i>Our Food</i>	Baxter Justin Rust	J. B. Lippincott & Co., Philadelphia	1952	—
69.	<i>Food for You</i>	Nasset E. S	Barnes & Noble Inc , N Y.	1960	10.00
70.	<i>Fooding the Family</i>	Alan Porter	British Medical Association.	—	10.00
71.	<i>Vegetables in India</i>	C C. Devadoss	Christian Literature Society, Madras.	—	—
72.	<i>The Nutritive Value of Indian Foods and the Planning of Satisfactory Diets, Special Report Series No. 42</i>	Aykroyd, W R., Gopalan C and Balasubrahmanyam	Indian Council of Medical Research, New Delhi.	1966	8.00
73.	<i>Fundamentals of Nutrition</i>	Crompton and Lloyd	W. H. Freeman & Co , San Francisco and London.	1959	—
74.	<i>Learning to Cook</i>	Paten Marguerite	Pan Books Ltd., London.	1958	—
75.	<i>Vitality Through Planned Nutrition</i>	Davis, A	MacMillan & Co., New York.	1956	—
76.	<i>Family Meals and Hospitality</i>	Lewis, D.S , Peckham, G C. and Hovey, H-S.	MacMillan & Co , New York.	1956	—
77.	<i>Foods for Home and School</i>	Greer, C C	Allyn and Bacon, New York.	1946	—
78.	<i>Diet and Diet Reform</i>	M.K. Gandhi	Navajivan Publishing House, Ahmedabad.	1949	2.50
79.	<i>Food</i>	McCarrison, Robert	MacMillan & Co., New York.	1956	2.65
80.	<i>Teach Yourself to Cook</i>	White, E. and Waston E.R.	English Universities Press, Ltd. London.	1952	—
81.	<i>Food, Health, Vitamins</i>	Plimmer, R.H.A. and Plimmer G.V.	Longmans, Green & Co., London.	1955	—

S.No.	Title	Author	Publisher	Year of Publica- tion	Price Rs.
82.	<i>Cookery and Nutrition</i>	J.M. Holt	G. Bell & Sons, Ltd., London.	1958	—
83.	<i>Food Shortage and Agriculture</i>	M.K. Gandhi	Navajivan Publishing House, Ahmedabad	1949	2.50
84.	<i>Diet Atlas of India— Special Report Series No.48</i>	Nutrition Research Laboratories	Indian Council of Medical Research, Delhi.	1964	3.00

PAMPHLETS

Source	Title
Farm Information Unit, Directorate of Extension, Ministry of Food and Agriculture, Krishnal Bhawan, New Delhi.	1. <i>Information Leaflet No. 51 Nutritive Value of Indian Wheats</i> 2. <i>Why Leafy Vegetables?</i> 3. <i>Farm Bulletin No. 56: Our Leafy Vegetables</i> 4. <i>Farm Bulletin No. 43. Home Preservation of Fruits.</i>
Indian Council of Medical Research, P B No. 494, New Delhi-16.	1. <i>Report on the Results of Diet Surveys in India (1951), 152 pages (A Supplement to the Results of Diet Surveys (1953), 21 pages)</i> 2. <i>A Review of Nutrition Studies in India (1951), 86 pages.</i> 3. <i>Wheat and Wheat Products as Human Food (1952), 55 pages</i> 4. <i>Fortification of Foods (1953) 21 pages.</i> 5. <i>Milk Substitute of Vegetable Origin (1955) 48 pages.</i> 6. <i>Dietary Allowances for Indians, by V. N. Patwardhan (1960).</i> 7. <i>Menus for Low cost Balanced Diets and School Lunch Programmes, by Swaran Pasricha (1959) 30 pages.</i> 8. <i>Nutrition in India (1946-58) by C G. Pandit and K. Somswara Rao (1960), 92 pages.</i> 9. <i>Some Common Indian Recipes and Their Nutritive Value, by Swaran Pasricha and L. M. Rebellow, (1964), 113 pages.</i>
Central Food Technological Research Institute, Mysore-2.	1. <i>Project Circular Series.</i> 2. <i>Home Scale Substitute Foods Series (leaflets).</i> 3. <i>Home Scale Preparation and Preservation of Indian Sweets Series</i> 4. <i>Home Scale Fruit and Vegetable Preparations Series.</i>

Housing and Home Management

BOOKS

<i>S.No.</i>	<i>Title</i>	<i>Author</i>	<i>Publisher</i>	<i>Year of Publica- tion</i>	<i>Price, Rs.</i>
1.	<i>Management in Daily Living</i>	Bond, Ruth, L.	Macmillan & Co., New York	1944	15.00
2	<i>Managing for Effective Living</i>	Goodyear, Margaret R and Klohr, Chapin	John Wiley & Sons, New York	1954	30.00
3.	<i>Family Housing</i>	Carter, Deane, and Hinchcliff, Kirth H.	-do-	1949	40.00
4.	<i>The House for You</i>	Sleeper, Harold R.	-do-	1948	45.00
5.	<i>Home Furnishing</i>	Rutt, Anna Hong.	-do-	1961	50.00
6.	<i>Ilford Colour Book of Flower Decoration</i>	Groves, Joan	D.B Taraporevala & Sons Co, Bombay-1.	30.00	
7.	<i>The Art of Interior Design</i>	Ball Victoria Kloss	MacMillan & Co., New York,	1960	60.00
8.	<i>Inside Todays Home</i>	Faulkner, Ray	Holt, Rinehart & Winston	1960	50.00
9.	<i>Art in Everyday Life</i>	Golstein, Harriet and Golstein Vetta	Macmillan & Co., New York.	1954	50.00
10.	<i>Introduction to Home Furnishing</i>	Stepat-De Van Dorothy	-do-	1964	50.00
11.	<i>Furnishing Your Home</i>	Austin R.E. and Parvis, J.O.	Acme Code Co., Inc., New Jersey	1960	22.00
12.	<i>Teen Quick to Home Making</i>	Barclay Mariam S. and Champion Francis	-do-	1961	35.00
13.	<i>Homes with Character</i>	Craig Hazel T. and Rush Ola, D.	Acme Code Co. Inc., New Jersey.	1962	30.00
14.	<i>Exploring Home and Family Living with Teachers, Manual</i>	Fleck H., Fernandez, L. and Munves, E.	Acme Code Co., Inc., New Jersey.	1959	40.00

S.No.	Title	Author	Publisher	Year of Publica- tion	Price Rs
15.	<i>Your Home and You</i>	Greer, C.C. and Ellen, P.	Acme Code Co., Inc., New Jersey	1960	10.00
16.	<i>Home Economics Home Project Record Book</i>	Harris, J.W.	-do-		10.00
17.	<i>Everyday Living</i>	Harris, J.W., Tate, M.T. and Anders, I.A.	-do-		30.00
18.	<i>Handbook of Beauty</i>	Hart, Constance	-do-		7.00
19.	<i>Flower Arranging</i>	Rogers, Joyce	Paul Hamlyn, London.	1965	15.00
20.	<i>Adventuring in Home Living</i>	Hatcher, H.M. and Andrews, M.E.	Acme Code Co., Inc., New Jersey.	1959	35.00
21.	<i>Good House Keeping Book</i>	Kendall, H.W.	-do-		22.00
22.	<i>Experiences in Home Making</i>	Laitem, H.M. and Miller, F.S.	-do-	1960	35.00
23.	<i>First Aid for the Ailing House</i>	White Man, Roger, B.	McGraw-Hill Book Co., New York	1951	35.00
24.	<i>The Home and Its Furnishing</i>	Morton, Ruth	-do-	1953	35.00
25.	<i>House and Its Care</i>	Mathews, M.L.	Heath and Co.	1955	15.00
26.	<i>Modern Ideal Homes for India</i>	Deshpande, R.S.	—	1952	12.00
27.	<i>A Simple Guide to House Work</i>	—	National Institute of House Work Ltd.	1956	1.00
28.	<i>Making Housekeeping Easy</i>	Abel, G.D.	Funk and Wagnalls Co., New York.	1948	15.00
29.	<i>House Craft: Principles and Practice</i>	Bennica Ruth and Bexall Julia, E.	Sir Isaac Pitman, London.		15.00
30.	<i>Our Clothing</i>	Baxter-Justin-Rust	J.B. Lippincott and Co.	—	—
31.	<i>Removing Spots and Stains</i>	Ibert Mellan and Eleanna Mellan.	Chemical Publishing Co., New York,	—	—

S.No.	Title	Author	Publisher	Year of Publica- tion	Price Rs.
32.	<i>Housecraft Science</i>	Holt, J.M.	G. Bell and Sons, London.	1956	5.00
33.	<i>The Happy Home</i>	Ram Susheela	The Indian Women Writers Co-operative Publishing Co.	1953	15.00
34.	<i>Safety for the Household</i>	—	U.S. Department of Commerce	1947	5.00
35.	<i>Junior Home Making</i>	Jones and Burham	J.B. Lippincott & Co., Chicago.	1958	20.00
36.	<i>Simple Furniture and Interior Decoration</i>	Anand, D.M.	Ministry of Food and Agriculture, New Delhi.	—	1.00
37.	<i>Basic Principles of Healthy Housing</i>	—	American Public Health Association, Inc., Committee on the Hygiene of Housing, Broadway, New York.	1954	5.00
38.	<i>The Girl and Her Home</i>	Nicholas, Trilling.	Houghton Mifflin & Co.	1945	—
39.	<i>Management in Homes</i>	Cushman	Macmillan Co.	1954	30.00
40.	<i>Training in Home Craft</i>	Weddel, Margaret	British Gas Council, London.	1957	15.00
41.	<i>Shorter Course in House-wifery</i>	Kaye, A.M.	J.M. Deat & Sons, London.	1957	5.00
42.	<i>House Craft</i>	W. Burnam-Playdell Bouverie and M.I. Tinguhart	Macmillan & Co., London.	1957	5.00
43.	<i>How to Plan Your Kitchen</i>	Conway Charlotte	Greenberg, New York.	1955	9.00

PAMPHLETS

Source	Title
Farm Information Unit, Directorate of Extension, Ministry of Food and Agriculture, Krishi Bhawan, New Delhi.	<ol style="list-style-type: none"> 1. <i>Keeping Diseases Off Poultry Hens</i> 2. <i>Keep Some Poultry In Your Backyard</i> 3. <i>Housing Poultry Birds</i> 4. <i>Poultry Keeping For Egg Production</i> 5. <i>The Egg and You</i> 6. <i>Feeding Poultry For Profit</i> 7. <i>How To Grow Bananas</i> 8. <i>Papaya Is Easy To Grow</i> 9. <i>Get Rid Of The White Ants</i> 10. <i>The Parboiler At Kallupatti</i> 11. <i>Compost Is Easy To Prepare</i> 12. <i>A Smokeless 'Chulah' For Every Home</i> 13. <i>Meals Ready In An Hour If You Use This Cooker</i> 14. <i>Use A Hay Box And Save on Fuel</i> 15. <i>A Refrigerator For the Rural Home</i> 16. <i>A Handbook Of Animal Husbandry For Extension Workers</i> 17. <i>Fruit Nursery Practices In India</i>
Indian Council of Medical Research, P. B. No. 494, New Delhi-16.	<ol style="list-style-type: none"> 1. <i>A Decade of Research in Environmental Sanitation (1951-60),</i> by T. R. Bhaskaran. (1962)

Textiles and Clothing

<i>S. No.</i>	<i>Title</i>	<i>Author</i>	<i>Publisher</i>	<i>Year of Publi- cation</i>	<i>Price Rs.</i>
1.	<i>Introduction to Textiles</i>	Stout, E. E.	John Wiley & Sons, Inc., New York.	1960	—
2.	<i>Fibre to Fabrics</i>	Potter M. D. and Gorbman, B. P.	McGraw-Hill Book Co., Inc., New York.	1959	20.00
3.	<i>Clothing</i>	Latzke, A. and Qinlan, B.	J.B. Lippincott & Co., Philadelphia.	1935	25.00
4.	<i>Textile Fabrics and Their Selection</i>	Wingate, I.	Prentice-Hall, Inc., New York.	1961	45.00
5.	<i>Fundamentals of Dress Construction</i>	Manning, S. and Donaldson, A. M.	Macmillan & Co., New York.	1926	—
6.	<i>All About Upholstering</i>	Bergen, J.	Popular Mechanics Co., Chicago.	1952	—
7.	<i>Children's Tailoring</i>	Hepworth, M. F.	The English Universities Press, London.	1960	8.00
8.	<i>Removing Spots and Stains</i>	Mallan, I. and Mellan, E.	Chemical Publishing Co., Inc., New York.	1959	35.00
9.	<i>Our Clothing</i>	Baxter, L., Justin M. M. and Rust, L. O.	J. B. Lippincott, & Co., New York.	1952	—
10.	<i>Needle Craft for the Junior School</i>	Brann, O.	University of London Press, London.	1957	16.00
11.	<i>Clothing for the Home</i>	Kumar, K.	Farm Information Unit, Directorate of Extn., Ministry of Food and Agri., New Delhi.	1962	5.00
12.	<i>Handlooms of India</i>	—	All India Handlooms Board, Bombay.	—	—
13.	<i>The Indian Sari</i>	Dongerkery, K.S.	The All India Handicrafts Board, New Delhi.	—	—
14.	<i>Basic Processes and Clothing Construction</i>	Doongaji, S. and Deshpande, R.	New Raj Book Depot, New Delhi.	—	10.00

S.No	Title	Author	Publisher	Year of Publica- tion	Price Rs.
15.	<i>Standard Processes in Dress Making</i>	Towers, E.L.	University of London Press, London.	1957	13.00
16.	<i>Handicrafts for Boys and Girls</i>	Kay, J. and White, C.T.	English Universities Press Ltd., London.	1954	8.00
17.	<i>Phulkari</i>	—	Director, Publications Division, Ministry of Information and Broadcasting Delhi.	1959	5.00
18.	<i>Creative Hands</i>	Cox, D. and Warren, B.	John Wiley and Sons, Inc., New York.	1951	34.75
19.	<i>A Guide to Textiles</i>	Evans, M. and McGowan, E.B.	John Wiley & Sons, Inc., New York.	1947	16.25
20.	<i>Know Your Fabrics</i>	Taylor, L.D.	John Wiley & Sons, Inc., New York.	1951	42.00
21.	<i>Cotton Spinner's Hand-book</i>	Jagannathan, R.	D.B. Taraporevala & Sons, Bombay-1.	1966	7.00
22.	<i>Grammar of Textiles Design</i>	Nisbet, H.	-do-	„	19.00
23.	<i>The Mechanism of Weaving</i>	Fox, T.W.	-do-	„	30.00
24.	<i>Modern Textile Design and Production</i>	Wright, R.H.	-do-	„	10.00
25.	<i>Laundry Work</i>	Jackman and Rogers	Edward Arnold, London.	1954	7.50
26.	<i>Needle Work for Girls</i>	Isabel	English Universities Press, London.	1953	5.00
27.	<i>Knitting for Girls</i>	Isabel	-do-	1953	5.00
28.	<i>Crochet and Tailoring</i>	Crosia, Helen	-do-	1950	4.00
29.	<i>Teach Yourself Embroidery</i>	Jhoans, Mory	-do-	1951	4.00
30.	<i>Dress Making</i>	Horner, Isabel.	-do-	1954	4.00
31.	<i>Hand Weaving</i>	Chesry, Eve,	London Universities Press, London,	1955	4.00

S. No.	Title	Author	Publisher	Year of Publica- tion	Price Rs.
32.	<i>Progressive Needle Work</i>	Holt, J.M.	G. Bell & Sons, London.	1955	10.00
33.	<i>Basic Needle Work</i>	Bull, Winepride, M.	Longman Green & Co., London.	1954	10.00
34.	<i>Little Instructions for Cutting out in Needle Work and Dress Making</i>	Towers and Hewrs, H.	University of London Press, London.	1953	10.00
35.	<i>Laundry Work in Schools</i>	Henney, E. and Byeth, J.D.	J.M. Dent and Sons,	1956	2.00
36.	<i>Indian Costumes</i>	Glory, G.S.	The Popular Book Depot, Bombay.	1951	52.00
37.	<i>Encyclopaedia of Needle Craft</i>	—	Obhams.	1956	13.50
38.	<i>Easy Cutting</i>	Juvekar, M.B. and Juvekar, V.B.	Bell Co., Tram Nakar, Dadar, Bombay.	1956	4.00
39.	<i>Pocket Book of Cutting</i>	"	-do-	1957	4.00
40.	<i>Drawn Thread Work</i>	D.M.C. Library	Mulhouse, France.	1942	0.87
41.	<i>Linger Sewing Book (Rev.)</i>	Peckar—Mary Brooks	Mcgyn Hill Book Co	1955	15.00
42.	<i>Linger Instruction for Art Embroidery, etc.</i>	—	Singer Sewing Machine Co.	1955	15.00
43.	<i>Creative Hands (2nd Edition)</i>	Cox, Dovis, and Warren B.	John Wiley & Sons, Ltd.	1955	27.25
44.	<i>Book for Children Sewing (8-12.)</i>	Wollen Weber, Elise M.	Parton Glade Publishing Corp., Greenberg.	1955	7.50
45.	<i>Child's Book of Sewing</i>	Chapman, Jone	—	1951	12.50
46.	<i>Usha Sewing Book</i>	—	Usha Trading Co.	1955	10.00
47.	<i>Complete Guide to House Sewing</i>	Mager, Sylvio, K.	Pocket Books Inc.	1957	2.75
48.	<i>Textbook of Needle Craft</i>	Nance, Ida, M.	Edward Arnold.	1955	15.00

S No.	Title	Author	Publisher	Year of Publica- tion	Price Rs
49.	<i>Simple Embroidery</i> Designs	Cod, Hebe.	The Studio Publications.	1948	22.50
50.	<i>Hand Weaving</i>	Juvekar, V. B.	Ball & Co.	1957	4.50
51.	<i>Textile Fibres and Their Use</i>	Hess, Katherine, P.	J. B. Lippincott & Co., Philadelphia.	1954	27.50
52.	<i>Fabrics Revised edition</i>	Denny, Grace, G.	-do-	1953	15.00
53.	<i>How to know Textiles</i>	Shall, C. P.	Ginn & Company.	1950	14.00
54.	<i>Household Textiles and Laundry Work</i>	Deulkar D.	Atma Ram & Sons.	1951	7.50
55.	<i>Fabrics and Dress</i> (Revised edition)	Rathbone L. and Tarplory	Houghton Mifflin Co., Boston	1948	13.00
56.	<i>Fundamentals of Textiles</i> and Their Care	Dantyagi S.	Longman's Green Co., New Delhi.	1961	—
57.	<i>House Laundering</i>	Williams J.	Sir Isaac Pitman & Sons, London.	1965	5.62
58.	<i>Practical Tailoring</i> (2nd edition)	Liberty J. E.	Pitman Publications	1955	17.50
59.	<i>Shakuntala—The Art of Cutting</i>	Sumitra Devi	Atma Ram & Sons,	1957	3.75
60.	<i>A Guide to Textiles</i>	Guamis (Mary) etc.,	John Wiley & Sons Inc., New York.	1947	15.00
61.	<i>Phulkari</i>	Rampa Pal	National Printing Works, Delhi.	1955	4.00
62.	<i>Cotswool</i>	—	Bangalore Woollen Cotton & Silk Mills Co., Ltd., Madras.	1957	—
63.	<i>Clothing for Children</i>	Thompson & Rea.	John Wiley & Sons, Inc., New York.	1949	10.00
64.	<i>Unit Method of Sewing</i>	—	Iowa State College, Iowa, U. S. A.	1955	10.00
65.	<i>Sewing Made Easy</i>	Lynch M.	Garden City Books, New York.	1955	15.00

S.No.	Title	Author	Publisher	Year of Publica- tion	Price Rs.
66.	<i>Know Your Fabrics</i>	Taylor L.	John Wiley & Sons, New York.	1956	15.00
67.	<i>The Romance of Indian Embroidery</i>	Dongerkery K.	S. Thacker & Co., Bombay.	1951	12.50
68.	<i>Needle Work in Education</i>	Theodora	Longman Green & Co., London.	1947	7.00
69.	<i>Wool, Its Chemistry and Physics</i>	Breadley A.	D. B. Taraporevala & Sons, Co., Bombay-1.	1966	—
70.	<i>Wearing is fun : Make Pretty Things Easily and Cheaply</i>	White A. V.	-do-	1966	16.00
71.	<i>Handloom Weaving</i>	Orman, P.	-do-	9.00	
72.	<i>Hand Weaving and Education</i>	Mairet E.	-do-	8.00	
73.	<i>Hand Weaving Today, Tradition and Changes</i>	"	-do-	9.00	
74.	<i>A Practical Weaving Course</i>	Jarvis, P. R.	-do-	12.00	
75.	<i>Testing of Yarn and Fabrics</i>	Eyre, N.	-do-	40.00	
76.	<i>Handloom Weaving</i>	Christopher, E.	-do-	3.20	
77.	<i>The Cotton Spinner's Pocket Book</i>	Innes, J. F.	-do-	6.80	
78.	<i>The Testing of Yarns and Fabrics</i>	Curtis H. P.	-do-	18.60	
79.	<i>Textile Science : An Introductory Manual</i>	Marsh J. T.	-do-	32.00	

Health, First-Aid and Home-Nursing

BOOKS

S No	Title	Author	Publisher	Year of Publica- tion	Price Rs
1	<i>Everyday Domestic Science and Hygiene</i> (3rd edition)	Joslin I. C. and Taylor P. M.	Macmillan & Co , New York.	1963	20.00
2.	<i>The Penguin Handbook of First Aid and Home Nursing</i>	Knox A. C.W., and Gueritz, J. E F.	Penguin Book Ltd , Middle- sex	1961	4.00
3	<i>Health, Personal and Communal ; A Short Hygiene for Nurses</i> (2nd edition)	Gibson, J	Faber & Faber Ltd , London.	1964	12.00
4.	<i>First Aid A Text Book for Juniors</i>	Elsley J. J.	English Universities London.	1962	8.00
5.	<i>Hygiene and Public Health</i>	Chalke, H. D.	St. John Ambulance Associa- tion.	1962	6.00
6	<i>The Book of Health</i> (2nd edition)	Clark	Van Nostrand Co., New Jersey.	1962	16.00
7.	<i>Enjoying Health</i> (3rd edition)	Jones Evelyn G.	J. B Lippincott & Co., New York.	1959	30.25
8.	<i>Health and Hygiene</i> (3rd edition)	Banks A. L., and Hislop, J A.	H. K. Lewis & Co., London.	1965	4.00
9	<i>Your Diet in Health and Diseases</i>	Benjamin Harry	Kitabistan Publishers, Allahabad-2.	1966	3.00
10.	<i>Children's Ailments — Causes, Prevention and Care</i>	Clements Harry	-do-	1966	3.00
11.	<i>Essentials of Healthier Living</i>	Schifferes Justus, J.	John Wiley & Sons, New York	1960	35.00

S. No.	Title	Author	Publisher	Year of Publi- cation	Price Rs.
12.	<i>Universal Home Doctor</i>	Stevenson	New Book Society of India New Delhi-5.	—	21.00
13.	<i>Health and Fitness</i>	Meredith F. L.	D. C. Heath & Co, Boston.	1952	16.00
14	<i>Better Health</i>	Thomas, C. P.	Spck.	1954	1.00
15.	<i>Junior Health and Hygiene Manual</i>	—	British Red Cross Society.	1956	18.5
16.	<i>Junior Nursing Manual (5th edition)</i>	—	-do-	1956	1.87
17.	<i>Health and Hygiene (3rd edition)</i>	Banks A. Leslie.	University Tutorial Press Ltd, London.	1966	18.00
18.	<i>Basic Nursing (5th edition)</i>	Gill and Mille R.	Metropolitan Book Co. Ltd. New Delhi.	1965	35.00
19.	<i>Text Book of the Principles and Practices of Nursing (5th edition)</i>	Harmer & others	-do-	50.00	
20	<i>You Can Prevent Illness</i>	Pinckney	-do-	7.00	
21.	<i>Home Nursing and Family Health</i>	Rushink	-do-	35.00	
22.	<i>Hygiene and Health Education for training College</i>	Davies	Orient Longmans Ltd., Madras.	1962	12.50
23.	<i>Human Physiology.</i>	Purneaux	-do-	1962	9.60
24.	<i>Caring for the Individual Patient : A Student centred to Patient centred Approach to Fundamentals of Nursing</i>	Alford, Dolores Marsh Darvis		1962	
25.	<i>Scientific Principles in Nursing (4th edition)</i>	McClain, Mary Esther	Mosby.	1962	

S.No.	Title	'Author'	Publisher	Year of Publica- tion	Price Rs.
26	<i>Our Human Body, Its Wonders and Its Care</i>	Reader's Digest	Reader's Digest, New York.	1962	
27.	<i>College Health</i>	Eichenlaub, J. Ellis	Macmillian & Co., New York	1962	
28.	<i>Controlled Exercise for Physical Fitness</i>	Peebler Jack R.	Thomas C.C.	1962	
29.	<i>Community Health Services</i>	Wilbor Muriel Bliss	W.B Saunders.	1962	
30.	<i>Communicable Disease Control - A Volume for the Public Health Worker (4th edition)</i>	Anderson (Gaylord West)	Macmillan & Co , New York	1962	
31.	<i>Pictorial Hand book of Fracture Treatment (5th edition)</i>	Comptee, Edward Lyon	Year Book Medical Publication	1963	
32.	<i>Athletic Injuries: Prevention, diagnosis and treatment (5th edition)</i>	Thorndike, Augustus	Lea	1962	
33.	<i>The Care of the Geriatric Patient (2nd edition)</i>	Cowdry, Edwane Vincent	Mosby	1963	
34.	<i>The Home Medical Encyclopaedia</i>	Kuhne, Paul	Faber & Faber Ltd , London	1966 15 00	
35.	<i>Environmental Health and Hygiene</i>	Pearce, Evelyn	—do—	1966 25.00	
36.	<i>A General Textbook of Nursing</i>	,,	—do—	1966 35.00	
37.	<i>Everyman in Health and Sickness</i>	Robert, H.	Macmillan & Co , New York	1962 25.00	
38.	<i>The Natural History of Infectious Diseases</i>	Burnet, M.	—do—	1962 30.00	
39.	<i>A First Course in Hygiene</i>	Lyster, R. A.	Oxford University Press,	1965 8.00	

S. No.	Title	Author	Publisher	Year of Publica- tion	Price Rs.
40.	<i>Health Science and Physiology for Tropical Schools</i>	Daniel, F.	-do-	1965	8.00
41.	<i>Elementary Health Science for Tropical Regions</i>	»	-do-	1965	4.00
42.	<i>The Science of Health</i>	Platt, H. I. H. and Young R.	-do-	1965	1.50
43.	<i>The Book of the Body</i>	Savory, T. H.	-do-	1965	1.00
44.	<i>Health and Welfare Source Book</i>	Dubbin	Macmillan & Co., New York.	1965	50.00
45.	<i>Dr. Fox's Family Health Guide</i>	Fox	-do-	1965	45.00
46.	<i>Care of the Teeth</i>	Brierley, Neil	D. B. Taraporevala & Sons Co., Bombay. 1	4.00	
47.	<i>Live Long and Stay Young</i>	Trimmer, Frick J.	-do-	7.6	
48.	<i>About Sleep</i>	Duncan, A. H.	-do-	3.20	
49.	<i>The Universal Home Doctor</i>	Stevenson, Scott, (ed.)	-do-	21.00	
50.	<i>Towards a Happier Life from Guide to Good Health and Long Life</i>	Kamath, M. A.	-do-	7.50	
51.	<i>Eat and Stay Young</i>	Glass, Justine	D. B. Taraporevala & Sons Bombay-1.	2.80	
52.	<i>Raw Juice Therapy</i>	Lust, John, B.	-do-	10.00	
53.	<i>Medical Dictionary and Health Guide</i>	Edward, P. A. and Durham A. W.	-do-	4.00	

S.No.	Title	Author	Publisher	Year of Publica- tion	Price
54.	<i>Towards Health and Wholeness</i>	Dicks	Macmillan & Co , New York.	1960	20.00
55.	<i>Health and Growth Series : Health and Fun Revised</i>	Charters et al	-do-		8.00
56.	<i>Health Through the Year</i>	,,	-do-		15.00
57.	<i>Lets be Healthy</i>	,,	-do-		21.00
58.	<i>Health Secrets</i>	,,	-do-		15.00
59.	<i>Healthful Ways</i>	,,	-do-		15.00
60.	<i>Habits, Healthful and Safe</i>	,,	-do-		3.75
61.	<i>Growing up Healthy : A Sound Body</i>	,,	-do-		4.00
62.	<i>Practical First Aid Manual</i>	British Red Cross Society	Educational Productions Ltd , London.	1953	2.50
63.	<i>ABC of Nursing in the Home</i>	British Red Cross Society	Educational Productions Ltd., London.	1953	2.50
64.	<i>ABC of First Aid Treatment</i>	,,	-do-	1953	2.50
65.	<i>Junior Nursing Manual</i>	,,	-do-	1953	2.50
66.	<i>Manual of Health</i>	—	Ministry of Community Development, New Delhi.	1954	—
67.	<i>Be Stronger, Live Longer</i>	Goyle, V W	Careers Institute.	1955	10.00

S.No.	Title	Author	Publisher	Year of Publi- cation	Price Rs.
68.	<i>Key to Health</i>	Gandhi, M. K.	Navjeevan Publishing House, 1948 Ahmedabad.		0.62
69.	<i>Improvised Equipment in the Home Care of the Sick</i>	Olson, Lilo, M.	W. B. Saunders & Co., Philadelphia		7.50
70	<i>Body and Its Health</i>	Cullis, and Bend.	Augus Rokenstson Ltd	1957	13.25
71.	<i>Hygiene and Public Health</i>	Ghosh, G. N.	Blackeston Co.	1954	6.00

PAMPHLETS

Source	Title
Central Health Education Bureau, Directorate General of Health Services, Ministry of Health, Govt. of India, New Delhi.	1. <i>Malaria (Questions and Answers)</i> 2. <i>Malaria (A Booklet in Dialogues)</i> 3. <i>Filariasis—A Health Drama on Filariasis</i> 4. <i>Dental Cares—Illustrated Brochure on the Book</i> 5. * <i>Asha Visits the Dentist—Illustrated Booklet on Dental Hygiene</i> 6. <i>Care of Ear</i> 7. <i>Care of Nose</i> 8. <i>Care of the Eyes</i> 9. <i>Eye Bank</i> 10. <i>M.C.W. Services</i> 11. <i>Health Services for Mother and Children</i> 12. <i>Contributory Health Services Scheme</i> 13. <i>Leprosy in India</i> 14. <i>Leprosy Can Be Cured and Prevented</i> 15. * <i>Leprosy Is Curable</i> 16. <i>Leprosy Directory</i> 17. <i>Voluntary Organizations and India's Health Programme</i> 18. <i>International Organizations and India's Health Programme</i> 19. <i>Veneral Diseases in India</i> 20. <i>Health in India (in Pictures) Part I</i> 21. <i>Health in India (in Pictures) Part II</i> 22. <i>Swasth Hind (Souvenir)</i> 23. <i>What Everyone should know about T.B.</i> 24. <i>T.B. in India</i> 25. <i>Mental Health</i> 26. <i>Yogic Therapy</i> 27. ** <i>Malaria Unmulan—Visheshgyon Ke Vich</i> 28. <i>Influenza and How to Prevent It</i> 29. <i>Cholera and How to Prevent It</i> 30. <i>Diphtheria and How to Prevent It</i> 31. <i>Infantile Paralysis</i>

Source	Title
	32. <i>Infective Hepatitis (Jaundice)</i>
	33. <i>Whooping Cough</i>
	34. <i>Vaccination Is Painless</i>
	35. <i>Measles</i>
	36. <i>Malaria Eradication—What & Why</i>
	37. <i>Ring Worm</i>
	38. <i>Thread Worm</i>
	39. <i>Round Worm</i>
	40. <i>I Wish I Had Not Started Smoking</i>
	41. <i>Accidents Can be Prevented</i>
	42. <i>You can stop food adulteration</i>
	43. <i>Fly—Your Enemy</i>
	44. <i>Your First Visit to Doctor</i>
	45. <i>Lice</i>
	46. <i>Beware of Lice</i>
	47. <i>You Can Prevent Kalaazar</i>

Indian Council of Medical Research, P.B. No. 494,
New Delhi-16.

Memorandum on Poliomyelitis by Q. G. Pandit
and V. Ramalingaswamy (1955) 42 pages and
9 Illustrations.

Child Development and Mother Craft

BOOKS

<i>S No</i>	<i>Title</i>	<i>Author</i>	<i>Publisher</i>	<i>Year of Publication</i>	<i>Price Rs.</i>
1.	<i>Child Growth and Development</i>	Hurlock, Elizabeth (ed)	McGraw-Hill Book Co , New York.	1956	45.00
2.	<i>A Healthy Personality for Your Child</i>	Mehta Maya	Vora & Co Pvt , Ltd., Bombay-2	1966	0.40
3.	<i>Prenatal Care</i>	Nirmala, Kher	-do-	1966	0.80
4	<i>Your Child from 1-6</i>	„	-do-	1966	0.80
5.	<i>Your Child from 6-12</i>	Bhoota, Kamala	-do-	1966	0.80
6.	<i>Child Care and the Growth of Life</i>	Bowlby, John	D B. Taraporewala & Sons Co., Bombay-1.	16.00	
7	<i>Childhood and Adolescence</i>	Hadfield, J A.	-do-	1966	1.50
8.	<i>Infant and Child in the Culture of Today: The Guidance of Development in Home and Nursery School</i>	Gesell, Arnold and IIIG, Frances, L.	Harper & Row	1943	21.00
9	<i>Youth. The Years from Ten to Sixteen</i>	Gesell, Arnold and others	-do-	1956	-
10.	<i>The Pocket Book of Baby and Child Care</i>	Spock, Benjamin.	Pocket Books, Inc , New York.	1949	2.00
11	<i>Living with Children</i>	Chittenden, Gertrude, E	Macmillan & Co , New York.	1955	18.00
12.	<i>Learning to Care for Children</i>	Bradbury, D.E. and Atmton, E.P.	Appleton-Century Crofts, Inc , E.P.	1946	8.00

S.No.	Title	Author	Publisher	Year of Publication	Price Rs.
13.	<i>Healthy Babies Are Happy Babies</i>	Kenyon, J.H. and Russell, R.K.	New American Library	1952	1.50
14	<i>Your First Baby</i>	Gale, D.F.R.	English Universities Ltd., London	1952	15.00
15.	<i>Mother and Child Care in Pictures (4th edition)</i>	Zabriskie, Louise	J.B. Lippincott & Co, Philadelphia	1953	15.00
16	<i>Junior Mother Craft Manual</i>	—	British Red Cross Society.	1955	1.87
17.	<i>First Five Years of Life</i>	Gesell, R.M.	Harper & Harper	1952	22.00
18	<i>Infant Care</i>	Children's Bureau Publications	U.S. Govt. Printing Office.	1966	5.00
19.	<i>Your Child from One to Six</i>	U.S. Dept. of Health	—do—	1966	5.00
20.	<i>Your Child from Six to Twelve</i>	,,	—do—	1966	5.00
21	<i>Manual of Mothercraft and Child Welfare</i>	Balfour, M.I.	St. John Ambulance, India.	1950	1.25
22.	<i>Teach Yourself Mother Craft</i>	Martin, Mary	English University Press.	1950	4.50
23.	<i>Bringing up Children</i>	Benan, Kathleen	Thacker Spink Co.,	1950	4.50
24.	<i>Child in Our Midst</i>	Bryce	Christian Literature Book- shop, Madras	1947	1.25
25.	<i>Management of Children in India</i>	Buch, Edward	Thacker Spink Co.	1947	3.00
26.	<i>Puzzled Parents</i>	Warner	Mother's Union SPCK Depot, Delhi	1957	0.75
27.	<i>Babies are Human Beings: An Interpretation of Growth (Rev. edition)</i>	Alderich & Alderich	Collier Paperbacks,	—	36.00

S.No.	Title	Author	Publisher	Year of Publication	Price Rs.
28	<i>Dialogues with Mothers</i>	Bettelheim	Free Press of Glencoe	1962	30.00
29	<i>Child Development and Adjustment</i>	Clow, Lester and Crow Alice	Macmillan & Co, New York.	1962	45.00
30	<i>The Intelligent Parents Guide to Raising Children</i>	Jones	Free Press of Glencoe	1959	30.00
31	<i>Normal Children and Mother</i>		-do-	1959	42.00
32	<i>How to Give Your Children a Good Start in Life</i>		Collier Paperbacks.	1961	8.00
33	<i>Child Care and Management: From Birth to Adolescence</i>	Edge, P.	Faber & Faber Ltd., London, W.C. 1	1964	9.00
34	<i>Consider Your Children and How They Grow</i>	Manwell and Faber	The Beacon Press, Boston	1953	15.00
35	<i>Mothercraft in the Tropics</i>	MacPherson, Kenneth	Casseler & Co. Ltd, London E.C. 4		
36	<i>Child Care in India</i>	Achar, S T	Macmillan & Co, New York.	1964	3.00
37	<i>How to Discipline Your Children</i>	Barooh Dorothy	Public Affairs Inc, New York	1952	2.00
38	<i>Enjoy Your Child, Age 1, 2 and 3</i>	Hymes, James L.	-do-	1955	2.00
39	<i>Secret of Childhood</i>	Montessori, Maria	Atma Ram & Sons, Delhi.	1956	10.00
40	<i>Home Guidance for Young Children</i>	Longdon, G.	The John Day Co., New York.	1946	20.00
41	<i>You and Your Child's Health</i>	Harrich P. Kahn	Harper and Brothers, New York.	1955	21.00

S.No.	Title	Author	Publisher	Year of	Price	
				Publication	Rs.	
42.	<i>Your Child's Happiness</i> <i>A Guide to Parents</i>	Seipt Irene Schumo	Collier Books	New York	1955	7.50
43.	<i>The Mother and the Child</i>	M. Cherian	Christian Medical Assn.	of India	1959	4.00
44	<i>Handbook on Prenatal Care for Nurses, Midwives and Health Visitors</i>	Young R and Thirad, J.	Maternity and Child Welfare	Bureau, Indian Red Cross	1958	
45	<i>The Fundamental Needs of Child</i>	Frank, L.K.	Society, New Delhi	National Association for	1952	6.00
46	<i>Childhood and Adolescence</i>	Stone J.L and Church, J.	Randome House, New York.	1957	20.00	
47.	<i>Growth and Development of the Young Child</i>	Breckenridge, Mariam E	W.B. Saunders & Co , London	1965	40.00	
48	<i>Developmental Tasks and Education</i>	Haighurst, R J.	Longmans, Green & Co ,	1956	5.00	
49.	<i>Psychology of Early Childhood</i>	Laundreth, Catherine	London.	Alfred A. Knoff, New York	1958	15.00
50	<i>How to Help Your Child in School</i>	Frank, Mary, and Frank Lawrence, K.	New American Library, New York	1954	25.00	
51	<i>Living and Learning with Children</i>	Smart, R C. & Smart M S.	Houghton Mifflin Co., Boston.	1956	15.00	
52.	<i>The Nursery School</i>	Read, Katherine, H.	W.B. Saunders, London	1955	15.00	
53.	<i>Nursery -- Kindergarten Education</i>	Leavitt, J.E	McGraw-Hill Book Co., Inc.	1958	20.00	

PAMPHLETS

Source	Title
Farm Information Unit, Directorate of Extension, Ministry of Food and Agriculture, Krishi Bhavan, New Delhi.	<i>Toy Making</i>
Indian Council of Medical Research, P.B. No. 494, New Delhi-16.	<ol style="list-style-type: none"> 1. <i>The Use of Fresh Milk in Infant Feeding</i> 2. <i>The Feeding of Children from Six Months to Six Years in War Time</i> 3. <i>A Review of Work Done on Infant Mortality</i> by Dr. D. M. Satur and S. Bhatia 4. <i>Nutrition For Mother and Child</i>, by P. S Venkatachalam and L. M. Rebello (1962) 5. <i>Memorandum of the Conduct of an Enquiry into Infant Mortality</i> (1949) 6. <i>Memorandum of Registration and Clarification of Maternal Deaths</i>, (1950).

Human Relationships

S.No	Title	Author	Publisher	Year of Publication	Price Rs
1.	<i>Family Living</i>	Duvall Evelyn Millis	Macmillan & Co., New York.	1955	17.00
2	<i>You and Your Family</i>	Moore, B. M.	D. C. Heath and Co., Boston	1950	15.00
3.	<i>Living with the Family</i>	Price, Hazel Haston	-do-	1948	15.00
4.	<i>Family and its Relationship</i>	Groves Ernest R.	J. B. Lippincott & Co., Philadelphia, U.S.A.	1949	20.00
5.	<i>Marriage and Family Relationship</i>	Foster, Robert G.	-do-	1953	15.00
6.	<i>Effective Living</i>	Turner and Hose.	Prentice Hall, New York	1958	25.00
7	<i>Introduction to Family Relationships</i>	Smart and Smart	W. B. Saunders & Co., Philadelphia.	1953	20.00
8	<i>Personal Adjustment, Marriage and Family Living</i>	Landis, Fudson C. and Landis	Prentice Hall, New York.	1955	22.00
9	<i>New Ways in Old Education</i>	Dorothy, Baruch.	McGraw-Hill Book Co., New York	1959	35.00
10.	<i>Your Family Today and Tomorrow</i>	Force, E.	-do-	1955	28.00
11.	<i>Sex Education as Human Relations</i>	Kirkendall Lester A.	-do-	1950	35.00
12.	<i>Understanding Your Parents</i>	Osborne, Ernest.	-do-	1956	5.00
13.	<i>Your Life in the Family</i>	Rhodes, K., Sampless M. A., and Lawson, D. S.	-do-	1963	45.00

S.No.	Title	Author	Publisher	Year of Publication	Price Rs
14.	<i>On Becoming A Woman</i>	Williams M. and Irene Kane	McGraw Hill Book Co., New York.	1963	5.00
15.	<i>The Family A Dynamic Interpretation</i>	Waller and Hill	Metropolitan Book Co., Pvt Ltd., New Delhi.	1965	56.00
16.	<i>The Art of Living</i>	Maurois Andree	D. B. Taraporevala & Sons Co., Bombay-1.		3.50
17.	<i>Parenthood in A Free Nation</i>	Kawin.	Macmillan & Co., New York.	1963	15.00
18.	<i>The Family</i>	Mead	-do-	1965	70.00
19.	<i>Marriage is What You Make It</i>	Popenoe	-do-	1950	28.00
20.	<i>Your Marriage and the Law</i>	Pilpel and Zabin	Collier-Macmillan, New York.	1964	7.50
21.	<i>Parents Deserve to Know</i>	Jones	Macmillan, New York.	1960	30.00
22.	<i>How to Sell Your way Through Life</i>	Hill Napolian	D. B. Taraporevala & Sons Co., Bombay-1.		5.80
23.	<i>How to Stop Worrying and Start Living</i>	Carnegie Dale	-do-		4.80
24.	<i>Make the Most of Your Life</i>	Lutten, E.	-do-		4.50
25.	<i>Successful Living</i>	Wolfe Beran	-do-		2.75
26.	<i>Sex Knowledge for Boys and Adolescents</i>	Pillay A. D	-do-		2.00
27.	<i>Women - Her Charm and Power</i>	Downes, P.	-do-		3.2
28.	<i>The Changing Pattern of Family in India</i>	Devanandam P. (Ed.)	The Christian Institute for the study of Religion and Society, Bangalore.	1960	15.00

<i>S.No</i>	<i>Title</i>	<i>Author</i>	<i>Publisher</i>	<i>Year of Publication</i>	<i>Price Rs</i>
29.	<i>Principles of Human Relationship</i>	Norman, R. F	John Wiley & Sons New York.	1952	15.00
30	<i>Sharing Family Living</i>	Baxter L., Margaret M. J., Lucile O. R.	J. B. Lippincott & Co , Philadelphia, U.S.A.	1951	15.00
31.	<i>Essentials of Family Living</i>	Roth, M , Hocflin	John Wiley & Sons, New York.	1960	20.00
32	<i>Family Fun and Activities</i>	Mulas, Margaret	Harper & Brothers, New York	1958	25.00

Home Science

S. No	Title	Author	Publisher	Year of Publication	Price Rs
1	<i>Better Homes</i>	Needham, M A., and Strong, A. G. (Revised by Devyanandan C. E.)	Oxford University Press	1965	5 00
2.	<i>The New Home Economics Omnibus</i>	Harris, F L., and Huston H H	D C Heath and Co Boston.	1945	25 00
3	<i>Text Book of Home Science</i>	Devadas, Rajammal P	Directorate of Extension, Ministry of Food, Agri , Community Development & Co-operation, New Delhi	1967	17 50
4	<i>Text Book of Household Art</i>	Soundararaj, S.	Orient Longmans, Madras	1963	6 00
5.	<i>Careers in the Home Economics</i>	Harris, F L.	Little Brown and Co., Boston.	1942	25 00
6	<i>Introduction to Home Economics</i>	Bane, Lita, and Chapin Mildred, R.	Haughton Mifflin Co , Cambridge	1945	18 00
7.	<i>Why Study Home Science</i>	Devadas, Rajammal P	Sri Avinashilingam Home Science College, Coimbatore.	1959	00 50
8	<i>The Meaning of Home Science</i>	Devadas, Rajammal P.	-do-	1958	2 00
9.	<i>Home Making Education in the High School</i>	Williamson, M. and Lyle Steward, M	Appleton-Century Crofts, Inc., New York	1961	15.00
10	<i>Domestic Science</i>	Sen, H and the staff of the Lady Irwin College.	Orient Longmans Ltd. Madras.	1955	3.00
11	<i>Adventure in Home Living</i>	Hatcher, H. M. and Andrew, M. E.	McGraw-Hill Book Co , New York.	1959	45.00
12.	<i>An Active Programme in Home Making</i>				

Methods of Teaching Home Science

S No	Title	Author	Publisher	Year of Publication	Price Rs
1.	<i>Learning and Teaching</i>	Hughes, A. G. and Hughes E. H.	Orient Longmans Pvt Ltd, Madras.	1960	16.00
2.	<i>Health Education</i>	Bibby Cyril	William Heinemann Ltd, Toronto.	1957	16.00
3.	<i>Gandhi's Experiments in Education</i>	Avnashilingam T. S	Ministry of Education, Govt. of India, New Delhi.	1960	4.00
4.	<i>Utilising Festivals for Education</i>	Avnashilingam T. S	National Institute of Basic Edn., Govt of India, New Delhi.	1961	2.00
5.	<i>World Teachers on Education</i>	Avnashilingam T. S and Swaminathan, K.	Sri Ramkrishna Mission Vidyalaya Coimbatore Dt.	1958	4.00
6.	<i>Education in India</i>	Mudaliar, A. L.	Asia Publishing House, Madras.	1960	6.00
7.	<i>Audio-Visual Methods in Teaching</i>	Dale, E.	The Dryden Press, New York.	1953	45.00
8.	<i>Preparation and Use of Audio-Visual Aids</i>	Hass, K. B. and Packer, H. Q.	Prentice-Hall of India Ltd., New Delhi.	1964	9.60
9.	<i>Instruction Materials and Methods</i>	Brown, J. W., Lewis, R. B and Harclerode, F. F.	McGraw-Hill Book Co., Inc, London	1959	30.00
10.	<i>Audio-Visual Materials</i>	Wittich, W. A. and Schuller, C. F.	Harper and Brothers New York.	1957	50.00
11.	<i>Display for Learning</i>	Dale, E.	Dryden Press, New York	1952	30.00
12.	<i>Audio-Visual Aids</i>	Kulandaivel, K.	Sri Ramakrishna Mission Vidyalaya Coimbatore Dt.	1961	10.00
13.	<i>Audio-Visual Materials and Techniques</i>	Kinder, J. S	American Book Co., New York.	1950	30.00

S.No	Title	Author	Publisher	Year of Publication	Price Rs
14	<i>ABC's of Visual Aids and Perfectionists Manual</i>	Mannino, P	M. O. Publishers, Box No 406, State College, Pa	1953	10.00
15	<i>The Principle and Methods of Teaching</i>	Bhatia, K and Bhatia, B. D	Daoba House, 168, Nai Sarak, Delhi	1964	12.00
16	<i>Methods of Teaching Home Science</i>	Devadas, Rajammal P.	Sri Avinashilingam Home Science College, Coimbatore-11	—	7.50
17.	<i>Why Study Home Science</i>	„	—do—	1959	06.50
18	<i>Planning for Teaching</i>	Richey, R. W.	McGraw-Hill Book Co., Toronto.	1958	30.00
19.	<i>Co-operative Extension Work</i>	Kelsey, L. D. and Hearne, C. C	Comstock Publishing Associates, New York	1955	—
20.	<i>A Functioning Program of Home Economics</i>	Spafford, I	John Wiley & Sons, Inc New York.	1948	30.00
21.	<i>An Activity Program in Home Making</i>	Butter, E. C. and Patton, L.	Chas A Bennett Co., Inc, Illinois	1944	30.00
22	<i>Demonstration Techniques</i>	Allgood, M.B.	Prentice-Hall of India Ltd, New Delhi	1965	6.00
23	<i>The Teaching of Home Making</i>	Hatcher, H M and Andrews, M.E.	Houghton Mifflin Co., London	1945	25.00
24.	<i>Home Economics Education in the Junior High School</i>	Jones, E.G.	Denver Public Schools, U S A.	1948	25.00
25	<i>Home Making Education in the High School</i>	Williamson, M. and Lyle, M S.	Appleton-Century Crofts, Inc., New York	1961	25.00
26	<i>Fundamentals in Teaching Home Economics</i>	Spafford, I.	John Wiley & Sons, New York.	1954	29.00
27.	<i>Women of India</i>	Baig, T.A	Publication Division, Ministry of Information & Broadcasting, Govt. of India, Delhi-6.	1958	6.50

S.No	Title	Author	Publisher	Year of Publication	Price Rs
28.	<i>Women Saints of East and West</i>	Swami Ghanananda and Wallace, J S.	The Ramakrishna Vedanta Centre, London,	1955	10.00
29.	<i>Toward Better Teaching</i>	Assn. for Supervision of Curriculum Development of the National Education Assn., 1201 Sixteenth St, N W., Washington D.C.	—	10.00	
30.	<i>What Basic Education Means</i>	Bhatia, H R.	Orient Longmans, Madras.	1960	1.00
31.	<i>Principles and Practices of Teaching in Secondary Schools</i>	Risk, T M	American Book Company, New York,	1947	25.00
32.	<i>Introduction to Educational Psychology—Teaching in India Series</i>	Ryburn, W.M	Oxford University Press, London.	1959	4.25
33.	<i>Adventuring in Home Living</i>	Hatcher, H.M , and Andrews, M.E.	D C Heath and Co , Boston.	1959	42.00
34.	<i>Educational Psychology</i>	Boaz, G D.	Thompson & Co., Madras	1958	6.00
35.	<i>Report of the Secondary Education Commission</i>	Ministry of Education and Scientific Research, Govt. of India, New Delhi.	1958	5.00	

Periodicals and Magazines

Foods, Nutrition & Cookery

Title	Publishers
1. <i>Journal of Nutrition and Dietetics</i>	Sri Avinashilingam Home Science College, Coimbatore-11.
2. <i>Indian Journal of Home Science</i>	-do-
3. <i>Journal of American Dietetics Association</i>	American Dietetics Association Chicago, Illinois U.S.A.
4. <i>Nutrition Reviews</i>	The Nutrition Foundation, New York
5. <i>Nutrition</i>	Nutrition Research Laboratories, Indian Council of Medical Research, Hyderabad.
6. <i>Journal of Food Science and Technology</i>	Central Food Technological Research Institute, Mysore-2.

Housing & Home Management

Title	Publishers
1. <i>Home Science Bulletin</i>	Ministry of Food and Agriculture, Government of India, New Delhi.
2. <i>House Craft</i>	Councils and Education Press Ltd., Devonshire, London, W 1
3. <i>Home Science</i>	Farm Information Unit, Directorate of Extension Ministry of Food and Agriculture, New Delhi.
4. <i>Indian Management</i>	Abraham J.K., Caxton Press Private Ltd. New Delhi
5. <i>Ladies Home Journal</i>	Curtis Publishing Co, Philadelphia.

Health

Title	Publishers
1. <i>Herald of Health</i>	Oriental Watchman Publishing House, P.B. No. 35, Poona.

Title	Publishers
2. <i>Social Welfare</i>	Central Social Welfare Board, New Delhi.
3. <i>Swasth Hind</i>	Directorate General of Health Services, New Delhi
4. <i>Health for Home and Happiness</i>	Oriental Watchman Publishing House, P B. No. 35, Poona.
5. <i>Your Health</i>	Indian Medical Association, 23, Somayoya Mansions Corporation, Calcutta.

Education

Title	Publishers
1. <i>Journal of Secondary Education</i>	Ministry of Education, Government of India, New Delhi
2. <i>Journal of Audio Visual Education</i>	-do-
3. <i>The Education Quarterly</i>	- do -
4. <i>Teacher Education</i>	Directorate of Extension Programmes for Secondary Education, 3/17 Asaf Ali Road, New Delhi.
5. <i>Journal of Education and Psychology</i>	Faculty of Education, M S. University of Baroda, Baroda-2
6. <i>South Indian Teacher</i>	South Indian Teachers' Association, Madras.
7. <i>Education India</i>	Masalipatnam, Andhra Pradesh
8. <i>The Madras State Parent Teacher Association, News Letter</i>	Sengupta, K , Parent Teacher Association, Delhi
9. <i>Journal of Educational Research and Extension</i>	Sri Ramakrishna Mission Vidyalaya Teachers College, Sri Ramakrishna Mission Vidyalaya Post, Coimbatore. (India).

Child Development

Title	Publishers
1. <i>Child Care</i>	C. Simmons, Backbay View New Queen's Road, Bombay-4
2. <i>The Young Child</i>	Department of Psychological Foundation, National Council of Educational Research and Training, New Delhi

Extension

Title	Publishers
<i>1. Extension</i>	Directorate of Extension and Training, Ministry of Food & Agriculture, Government of India, New Delhi
<i>2 Extension Information</i>	-do-
<i>3. Madras Information</i>	Director of Information and Publicity, Government of Madras, Madras-9.
<i>4. Panchayati Raj</i>	Publications Division, Ministry of Information and Broadcasting, Delhi-6.
<i>5. Rural India</i>	Rural India, Narachowk, Bombay-7.
<i>6. Kurukshetra</i>	Ministry of Community Development, Government of India, New Delhi.
<i>7. Extension Bulletins</i>	Extension Services of Teachers Colleges in different States.
<i>8 Yojana</i>	Director, Publications Division, Delhi-6
<i>9. Indian Farming</i>	Indian Council of Agricultural Research, New Delhi.

List of Audio-Visual Materials For Teaching Home Science

A Films and Filmstrips

Films and filmstrips are available on loan from several agencies and organizations. Their addresses are listed below. The conditions laid down by these film libraries for borrowing films and filmstrips vary. It will be to the advantage of the Home Science teacher to write to them, find out the conditions, and have herself posted with the latest catalogues of films. Generally the financial commitment in borrowing films from these agencies amounts to only the postal charges of returning the films by registered post.

1. Films Division
Directorate of Extension
Ministry of Food and Agriculture
Krishi Bhavan
New Delhi.
2. Central Health Education Bureau
Ministry of Health
Government of India
New Delhi.
3. Communications Media Centre
U.S. Agency for International Development
11, Pandara Road Flats
New Delhi.-11
4. U.S.I.S. Libraries (in
major Cities.)
5. National Film Board of Canada
Office of the High Commissioner of Canada
Canada House Annexe
13 Golf Links
New Delhi.
6. British Information Service in Delhi,
Bombay, Calcutta and Madras.

**List of Films available from the National Institute
of Audio-Visual Education**

Food, Nutrition and Cookery

Title	Language	Time in Minutes
1. Amenaunce Child	English	36
2. Food for Health	Hindi	10
3. Vitamins A, B & C.	Sub titles English	10
4. Home Canning	English	11
5. Understanding Vitamins	English	15
6. Principles of Home Canning	English	11
7. Principles of Cooking	English	11
8. Balanced Diet	Hindi	9
9. Food for Thought	Hindi	19
10. Stanley Takes a Trip	English	16
11. Fundamentals of Diet	English	11

Textile, Clothing and Laundry

1. Basic fibres in Cloth	English	11
2. Clothing	English	9
3. Making Cotton Clothing	English	11
4. Queen Cotton	English	10
5. Warm and Fleecy	Hindi	11
6. Wool from Sheep to Clothing	English	11
7. Synthetic Fibres-Nylon & Rayon	English	15
8. Modern Weaving	English	11
9. Wool-Marketing and Manufacture	English	45

Title	Language	Time in Minutes
Home-Nursing, Health, First-Aid		
1. Child Care and Development	English	19
2 Care of the New Born Baby	English	31
3. Clothing For Children	English	10
4. For Health and Happiness	English	11
5. Know Your Baby	English	11
6. Your Baby	Hindi	11
7. Your Childern and You	English	28
8. Home Nursing	English	11
9. Baby Care and Grooming	English	20
10. Cleanliness Brings Health	English/Hindi	10
11. Dirty Habits	English/Hindi	10
12. Personal Hygiene	English/Hindi	10
13. Personal Hygiene for Young Man	Silent	14
14. Personal Hygiene for Young Women	Silent	14
15. Sleep for Health	English	10
16. Your Childern's Sleep	English	16
17. Defence Against Invasion	Hindi/English	12
18. How to Prevent Disease	Silent	14
19. Insects as carriers of Disease	English/Hindi	9
20. What is Disease	English/Hindi	12
21. First Aid	English	9
22. Fight Against Disease	English	11
23. First Aid on the Spot	English	11
24. Breath of Danger	English	9
25. Eradicate the Enemy	English	9
26 Health for Millions	English	11

Title	Language	Time in Minutes
27. Your Health Centre	English	8
28. Gram Safai	English/Hindi	13
29. How Disease Travels	English	10
30. Emergency Relief	Hindi	10
31. Examination of Unconscious Patient	English	6
32. First Aid for a Patient with a Fractured Spine	English	8
33. Care of Skin	English	11
34. Healthy and Happy	Hindi	11

Child Development and Mother Craft

1. Early Social Behaviour	English	10
2. Growth: A Study of Johnny and Gimmy	Silent	43
3. Heredity and Prenatal Development	English	21
4. Study of Twins Part I	Silent	17
	English sub-title	
5. Study of Twins Part II.	Silent	17
	English sub-title	
6. Study of Twins Part III	-do-	17
7. Study of Twins Part IV.	-do-	19
8. Important People	Hindi	11
9. Know your Child	English	11
10. Baby meets his Parents	English	11
11. Baby's Day at 48 Weeks	English	11
12. Baby's Day at Twelve Weeks	English	11
13. Behaviour Pattern at the Year	English	11
14. Growth of Adaptive Behaviour	Silent	15
	English title	
15. Growth of Mother Behaviour	-do-	15
16. Emergence of Personality	English	30

Title	Language	Time in Minutes
17. Thirty-six Behaviour Day	English	11
18. Children Learning by Experience	English	32
19. Life with Baby	English	18
20. Preface to Life	English	29
21. Problem Solving in Infants	Silent English sub-title	28

Human Relations

1. From Sociable Six to Noisy Nine	English	21
2. Frustrating Fours and Fascinating Five	English	22
3. Developing Responsibility	English	11
4. Citizen and Citizen	Hindi	11
5. Good Citizen	Hindi	12
6. Good Manners	Hindi/English	11

Family and Community Life

1. Boundary Line	English	10
2. Right of Man Revised	Hindi	20
3. Folk Music of Bengal	Hindi	11
4. Community Singing	Hindi/English	11
5. Fitness is a Family Affair	English	16
6. Kulu-The Happy Valley	English/Hindi	11
7. Samaj Ghai	English	10

**List of Films available from the Ministry of Information and Broadcasting
Government of India.**

Title	Language	Time in Minutes
Fruit and Vegetable Production		
1. Improved Seeds	English	18
2. Vegetable Growing	English	20
3. Citrus Cultivation	English	20
4. Vegetable for Utility	English	14
Poultry Production		
1. Poultry Keeping	English	14
2. Poultry Hazards	English	14
Milk Production		
1. Milk for Millions	English	17
2. Clean Milk	English	18
Fish Production		
1. Village Tanks	English	17
2. Wealth of Our Waters	English	11
3. Co-operation of Fishermen	English	20
Food Technology		
1. Parboiled Rice	English	20
2. Research for Better Food	English	11
3. A New Technology	English	14

Title	Language	Time in Minutes
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Storage of Food

1 Storage of Food Grains	English	12
2. War on Waste	English	12

Community Organizations

1. A True Story (Madras Midday Meals Scheme)	English	12
2. Women Workers	English	25

List of Filmstrips available from the National Institute of Audio-Visual Education

Title	No. of Frames
Home-Nursing, Health and First-Aid	
1. Your Friend—The Public Health Nurse	74
2. Yourself and Your Body	69
3. The Human Body	32
4. The Human Body Series—Eyes and Their Care	72
5. The Human Body Series—Body Defence against Disease	65
6. Control of Body Temperature	59
7. Vitamins and Mineral Salts	34
8. Mechanism of Breathing	63
9. The Human Body Series—Digestion of Food	80
10. Eye Protection	29
11. Checking Your Health	45
12. Health Habits	43
13. Keeping Neat and Clean	47
14. Tumbling and Other Exercises	41
15. First Aid	43
16. Heart and Circulation	74
17. Care of the Skin	58
18. Treatment of Thickened Toe Nails	18
19. Fracture	7
20. Nervous System	60
21. Fracture Parts I and II.	40, 42
22. Save Your Teeth	52
23. Care of the Feet	81

